TELEPHONE and Management ENGINEER

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V.59 no 4

APRIL
1955

RARY
55

THE NATIONAL TELEPHONE MAGAZINE

Featuring in This Issue—

★ EDITORIAL—"THE NEW LOOK IN THE TELEPHONE INDUSTRY"

★ CHEMICAL SPRAYS EASE RIGHT-OF-WAY CLEARANCE, *by S. A. Haviland*

★ THE 1955 APPROACH TO SUPERVISION, *by A. O. Sartain*

★ EXCHANGE MAINTENANCE PROGRAMS, *by John S. Reed*

★ TRAINING TRAFFIC EMPLOYEES, *by Ruth E. Richards*

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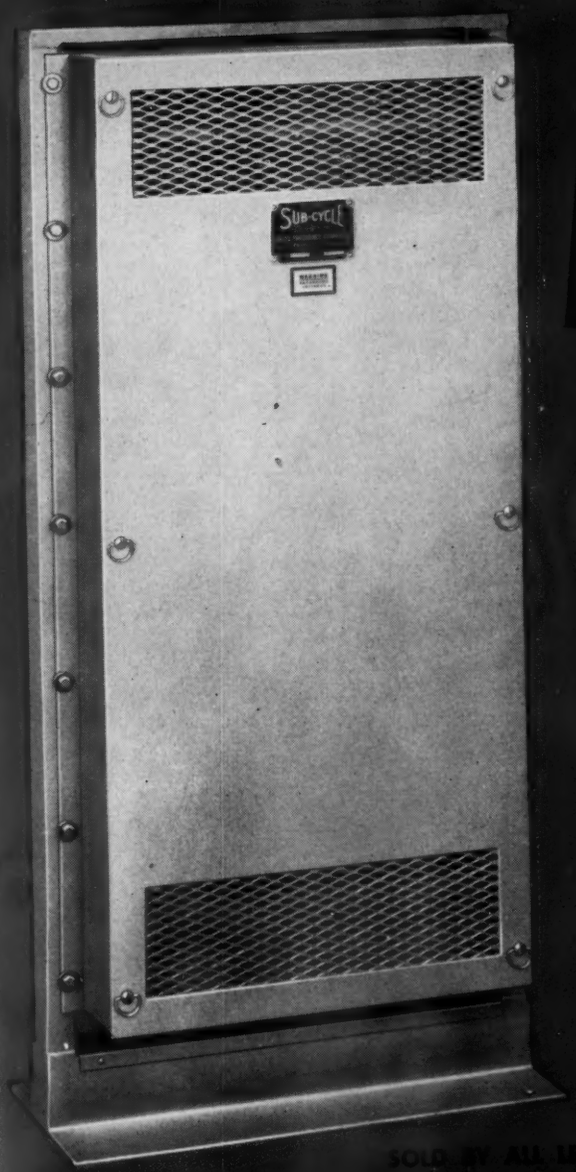
FOR SYNCHROMONIC RINGING!



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Making use of a unique conversion principle combined with basic Sub-Cycle circuits used repeatedly in other Lorain equipment, the S-5 Sub-Cycle has power to spare. Depend upon it to deliver full-rated capacity even under the most gruelling conditions. It has excellent voltage regulation, and will always deliver the exact synchromonic ringing frequencies. The S-5 has no moving parts; therefore, it provides the permanent, maintenance-free, economical operation that is characteristic of all Sub-Cycles.

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TELEPHONE and Management ENGINEER

A Telephone Engineer Publication

APRIL 1955
Vol. 59 No. 4

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FRONT COVER

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MAXIMUM EFFICIENCY AT MINIMUM INITIAL COST.

- **AVAILABLE WITH 6 OR 16 PAIRS**
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Rex Rural Distribution Cable is unequalled for quality, performance, transmission and strength. The conductors are #19 solid, bare, soft drawn copper — polyethylene insulated and individually vinyl jacketed. They are completely color coded. Conductors are cabled around an insulated, galvanized steel messenger cable which has tremendously high strength to withstand severest weather conditions and permit longer than usual runs.

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GraybaR TELEPHONE NEWS

THE FIRST PAY BOOTH TELEPHONE CALL!

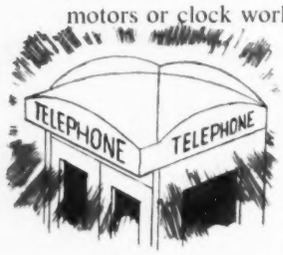
Historians say that in 1882, Alexander Graham Bell placed the first toll call to Chicago from this curtained and carpeted booth in New York. Rates for this new innovation in telephone service were $9.00 per 5 minutes and callers considered themselves fortunate when connections were made in under an hour.

... AND TODAY'S MODERN OUTDOOR SERVICE

Outdoor booths – Give your customers the best in outdoor pay-station service by using these rugged weatherproof booths. Shipped set up and ready for use, they're available painted in standard slate grey or in distinctive special colors at slight additional cost.

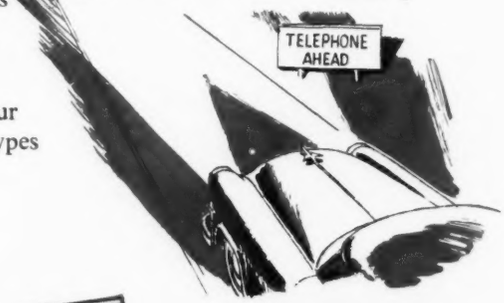
ROUND-THE-CLOCK REVENUE

Electronic controls – Install Ripley Night Watchman units in all your booths. An electronic eye turns on booth lights at dusk, turns them off at daybreak. Unit is easy to install . . . has no motors or clock work to freeze or run down.



Glo-dome roof – Add a plastic Glo-dome roof and you have a truly unbeatable combination for increased revenue. The Glo-dome, which glows brightly to attract attention all night long, fits standard booths now in service and when specified can be furnished on new booth orders.

Pay station units – Graybar can supply Autelco pay stations equipped with the same dials, handsets, and induction coils you use in your standard sets. In this way, you can be sure of holding inventories of maintenance parts to a minimum. 385-233



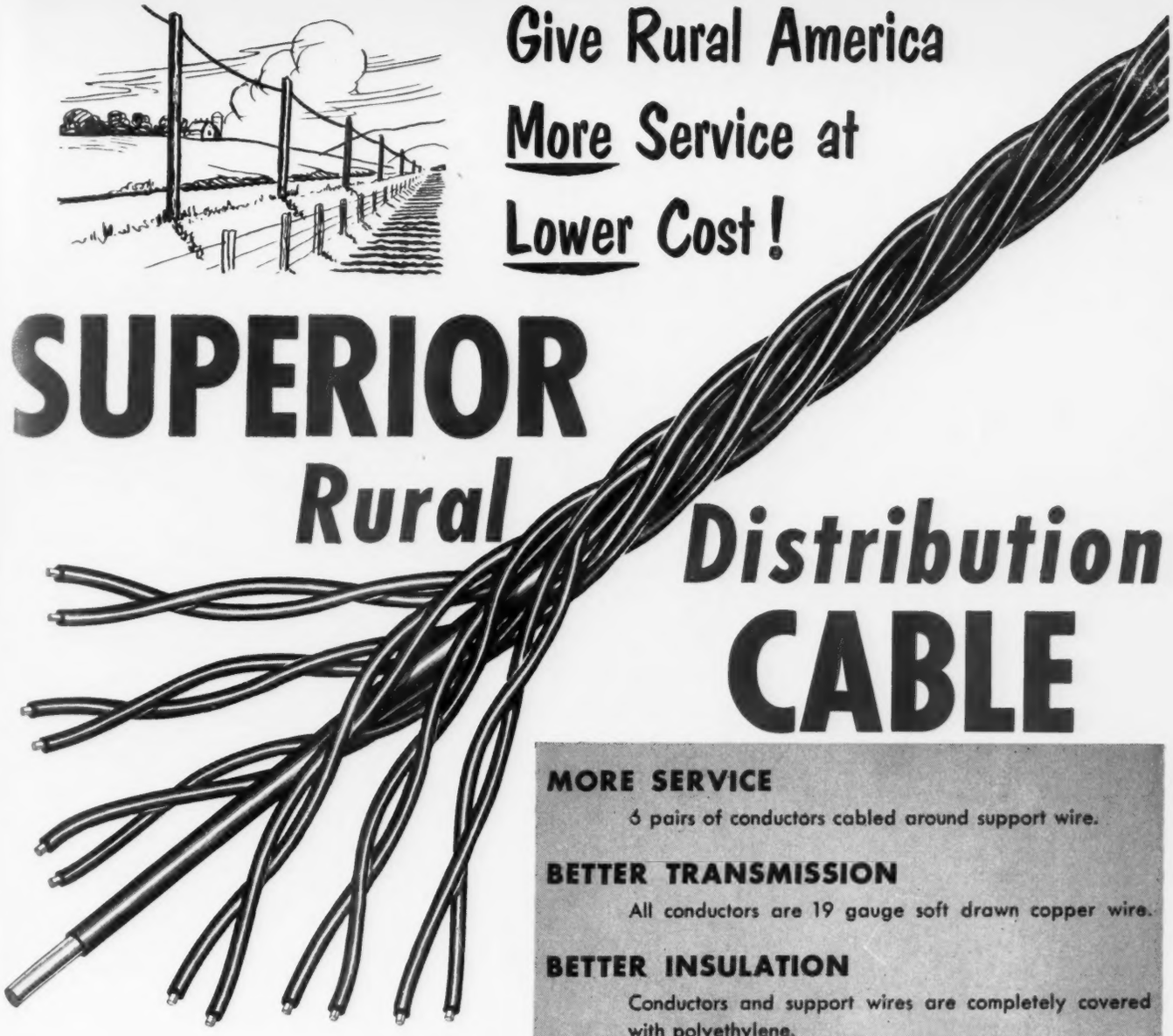
Signs and brackets – Tell out-of-towners and local residents of your outdoor service by using good signs in the right places. Several types of signs and brackets are illustrated here, but for complete details on others, as well as equipment for all indoor or outdoor installations, consult your local Graybar Representative – he'll be glad to assist you.

Call Graybar first for... GraybaR QUALITY *Everything in Telephone Supplies*

GRAYBAR ELECTRIC CO., INC.
Executive Offices:
Graybar Building, New York 17, N. Y.
IN OVER 100 PRINCIPAL CITIES

Give Rural America More Service at Lower Cost!

SUPERIOR Rural Distribution CABLE



MORE SERVICE

6 pairs of conductors cabled around support wire.

BETTER TRANSMISSION

All conductors are 19 gauge soft drawn copper wire.

BETTER INSULATION

Conductors and support wires are completely covered with polyethylene.

SIMPLER SPLICING

Every circuit accessible. Conductors have double raised ridge or color-coded tracers. New stations readily added.

LONGER SPANS

Extra high strength (1800 lbs.) galvanized steel support wire to withstand rough weather. Makes longer spans possible.

LOWER COST

Low initial cost . . . rapid and inexpensive installation.

Use SUPERIOR Rural Distribution CABLE to add new circuits to existing pole lines or to construct new installations—no crossarms are required. Minimum tree-trimming.

Use SUPERIOR for branches off of existing main lines of open wire and cable.

Use SUPERIOR to parallel existing runs of small cables.

Give Rural America More Service at Lower Cost . . .

use SUPERIOR Rural Distribution CABLE

Available NOW—write, wire or phone

SUPERIOR CABLE

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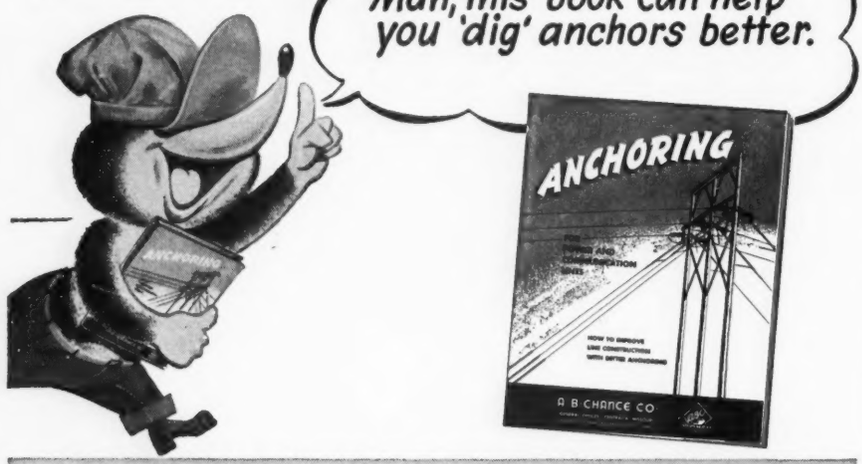
Give the Guy a CHANCE

When anchor users make a study of earth anchors—make their own pull tests for holding power—make their own comparisons . . . we're happy, because the Chance 8-Way almost always takes top position for holding power and ease of installation.

Such tests prove that the 8-Way holds far more than its rated load because its *eight* blades expand to form a complete pyramid shaped square—there is no wasted space between blades. The guy load is distributed to all *eight* blades all the way around the hole.

Chance 8-Way Anchors are available in sizes from 60 to 200 square inches in area, for distribution and transmission line guying. Your Chance Anchor Distributor can supply you from stock. *Specify Chance for Service!*

MIKE THE MOLE SAYS: "Man, this book can help you 'dig' anchors better.



A. B. CHANCE CO. • 200 N. ALLEN ST. • CENTRALIA, MO.

Here is the most complete guide to better anchoring ever developed. It's chock full of how-to-do-it material to help you select the right anchor for every guying job—and install it properly. It's FREE!

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COMPANY_____

ADDRESS_____

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CA55-4A

Across The Editor's Desk

Texas Convention Notes

CONSPICIOUS by his absence from the Texas Convention was *T. A. Singer* of *Dimmitt, Texas*, one of the old-timers and a current director of the association. His son was present and reported his dad was recuperating from another heart attack. It will be remembered that T. A. had a serious stroke in 1951. All of his many friends join your reporter in wishing him God-speed on his way to recovery.

• • •

D. M. ROBB and his charming frau of Electra have scheduled a Carribbean Cruise for the near future. "Dink" says "he guesses it will be safe to leave the telephone exchange in the hands of his father, *Al* . . . who started the plant in Electra. Texas, many, many years ago, and has been a director of the association for as far back as we can remember. Yes . . . he shouldn't worry as Al will probably know what it is all about.

• • •

THE VISITORS from the Midwest and Northern climes were peeling off their heavy jackets and one or two of them were seen in San Antonio stores purchasing light weight suits. It was around 90 degrees on opening day of the convention and it had been almost a hundred a day or so before, we were told.

• • •

TRAVELERS — From San Antonio, *Mr. and Mrs. Charles Cadwell* of Chicago flew to Miami, Florida to meet their daughter *Pat* and spend a few days relaxing before proceeding to the U.S.I.T.A. Conference at Clearwater. *Mr. and Mrs. H. T McCaig* of Berwyn, Ill., stopped at the San Antonio convention (and were among those shopping for lighter clothes) on their way to New Orleans, Florida and points south Your reporter, *Roy F. Smith* and *Mrs. Smith* stopped by Fort Worth, their old home town for a few days before returning to Chicago.

The Silver Anniversary Terminal

News of the introduction of the Cook XB Cable Terminal twenty-five years ago may have been overshadowed by the vivid descriptions of the world series victory of Connie Mack's Philadelphia Athletics...reports of Herbert Hoover's presidential activities...and headlines telling of the first Paris to New York nonstop flight. But, today this Silver Anniversary Terminal stands out as a truly important improvement in telephone distribution systems. Although some minor improvements have been made since the first models were installed a quarter-century ago, the basic design has never been equalled for excellence of service as attested through universal acceptance by the telephone industry in the United States, and throughout the world.

Available in 6, 11, 16, and 26 pair with or without stub

2700 SOUTHPORT AVENUE CHICAGO 14, ILLINOIS

Tele-Views

SANFORD B. COUSINS, vice president of public relations for the American Telephone & Telegraph Co., has been appointed a director of the New York Telephone Co. at a meeting of its board of directors. Mr. Cousins, who until February 1 of this year had been president of Northwestern Bell Telephone Co., Omaha, Neb., began his telephone career as a traffic student in the Long Lines Department of the A. T. & T. in New York in 1920.

The appointment of CHARLES E. DURKEE as technical head of the radar and communications section of Cook Research Laboratories, Skokie, Ill., a division of Cook Electric Co., Chicago 14, Ill., has been announced by J. Robert Downing, director of research. Mr. Durkee joined Cook Research in 1950 as project engineer on radar research and development.

ARTHUR LOHMAN, blind information operator for the Minnesota Telephone Company, Kenyon, Minn., was one of the "most-queried" persons at the 46th annual convention of Minnesota Telephone Association, held Feb. 14-16 in Hotel St. Paul. The 52-year old man, totally blind since 1925, provided a convention information service for delegates, with all questions about room numbers and location of events being channeled to him. He set up a special convention directory in Braille, and in the picture above shows the directory to his boss, ELNATHAN GATES of Minneapolis, president of Minnesota Telephone Co. Watching is ELDRIDGE KING of Kansas City, Mo., vice-president of Loomis Advertising Co., nationwide publishers of telephone directories. The Loomis Co. sponsored Mr. Lohman's appearance at the convention.

KENTUCKY OPERATORS: — Chief operators of the Southern Continental Tel. Co. attended the recent Kentucky Convention. Left to right: — HADGIE ROLLINS, Lebanon; BOBBIE NANCE, Campbellville; BESSIE KEEN, Elizabethtown; LORENE CRAWFORD, Somerset; and MARY READ, Glasgow.

ETHEL SEAHOLM, secretary of the Texas Association, standing, supervising her assistants, BARBARA STOKER and BETTY TROUTMAN and MORRIS S. BURTON of Tyler registers.

NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*
ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

Dear Sir: April 15, 1955

LONG STEP TOWARD A NEW TOLL COMPENSATION SETUP for Independent telephone companies' traffic interchanged with the Bell System, founded on carefully drawn study data showing costs to the Independents of handling the business, instead of present arrangement, based generally on overall averages, was announced March 29.

US Independent Telephone Association advised its members that its Toll Compensation & Settlements Committee & spokesmen for Bell companies had reached agreement on broad study program to begin immediately. Costs of handling interchanged long-distance traffic will be surveyed at a cross-section of about 600 Independent exchanges, aimed at determining whether present compensation structure should be revised & if a more appropriate arrangement can be worked out.

Both the "A" and "B" functions—"A" covers use of local plant facilities, & commercial and revenue accounting expenses, & "B" encompasses toll operating, including ticketing, timing, and handling calls to completion--will be involved. Substantial progress already is being made cooperatively on study of line haul prorates, the third element in determining toll compensation, and the work will be completed in the near future, it was reported.

The agreement came after months of study of the subject by the Bell System and USITA representatives. Present toll compensation schedules were established on basis of 1951 study, adjusted for 1952 wage costs, & resulted in a more or less"across-the-board" boost of $18,000,000 in the Independents' participation.

* * *

TOTAL OF $75,000,000 in FARM TELEPHONE LOAN AUTHORITY for Rural Electrification Administration in fiscal 1956, increase of $5,000,000 over President's budget, was approved by House March 28 after it had been recommended by its Appropriations Committee. In its report, committee said that the $75,000,000 total will "enable the telephone program to continuue at the same level as was authorized for 1955. The committee believes that the large backlog of loan applications on hand makes it unwise to reduce this program below the current year's level." REA also received an increase of $395,000 in its administrative funds for the telephone program.

* * *

MICHIGAN BELL TELEPHONE CO. last month asked FCC to certify that its proposed acquisition of facilities of 2 Independent Michigan telephone companies will be in the public interest. Properties involved are those of the Watson, (Mich.), Tel. Co., srving about 140 customers, and the LaPorte, (Mich.), Home Tel. Co., now serving about the same number of customers. Owners of both plan to retire from the telephone business. The Watson company also has properties slated to be acquired by the Union Telephone Co. of Owosso, Mich.

Custer Tel. Cooperative, Inc., newly-organized cooperative in Challis, Ida., has received Rural Electrification Administration approval for loan of $403,000.

Company plans acquisition of 2 Independent companies & other facilities from the US Forest Service and Mountain States Tel. & Tel. Co. These properties now serve 244 subscribers over 134 miles of line. 3 new dial central offices & 269 miles of line will be constructed. Completed system will consist of 325 miles of line serving 481 subscribers.

Second loan of $252,000 went to Calvert Tel. System, Calvert City., Ky., bringing its total allocated to $704,000. Borrower expects to serve 1810 rural subscribers over 229 miles of line, through 2 dial central offices, & will acquire Smithland Tel. Co., serving 254 of subscribers, with its own equity funds.

An REA loan approval reported April 1 will provide for telephone expansion in western portion of Iron County, Utah, where total telephone facilities at present consist of one toll station operated by the Mountain States Tel. & Tel. Co., REA said. Approval — for $61,000 — went to South Central Utah Tel. Association, with headquarters at Richfield, Utah. An earlier loan, for $340,000, will provide for telephone expan- in May, 1953. The total system contemplates service to 700 dial subscribers through 6 exchanges in five counties.

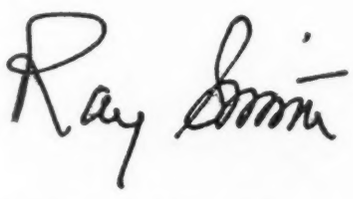
* * *

COMMON CARRIERS ASPECTS of television service, expected to be major part of the FCC common carrier staff's work in upcoming months, again arose March 30 when FCC called for comments by April 29 on proposal of Bell System to provide lower-cost inter-city television service by use of off-the-air pickup method.

Action was described by Commission as "supplemental" to its pending rule-making case, in which, it recalled, it asked comments on petitions "that the Commission authorize TV stations, on an interim basis, to operate their own intercity relay auxliaries in preference to using more costly common carrier facilities, especially small stations in less populous areas."

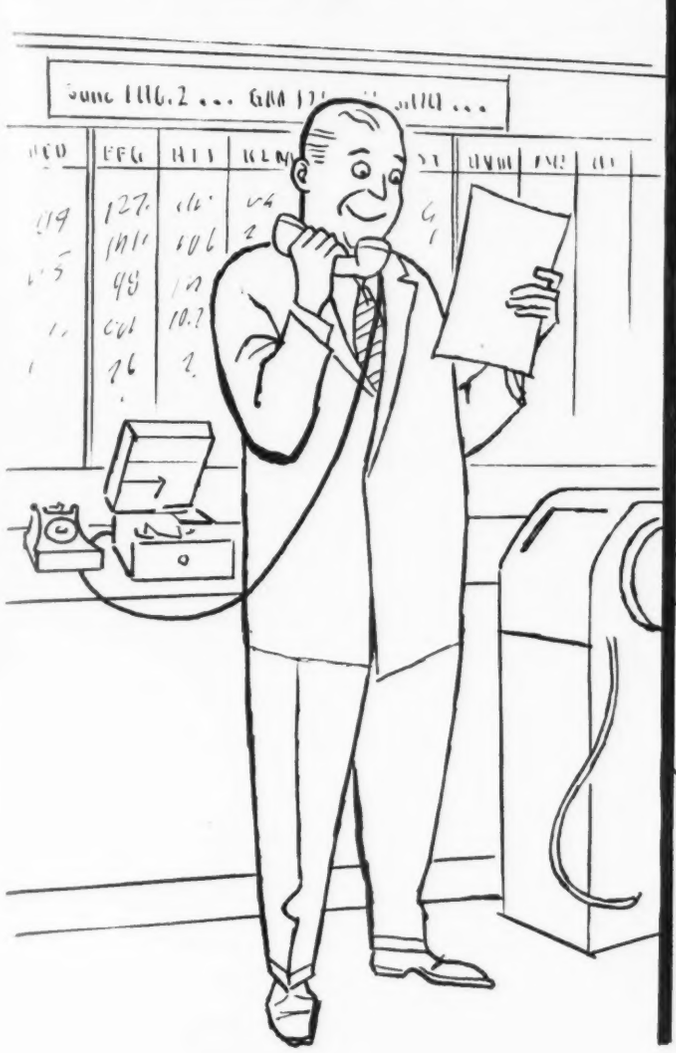
Commission said it is inviting comments "to determine to what extent proposed new service will alleviate problems of the broadcasters referred to in previous comments."

First AT&T reference to possibility of using off-the-air pickup as means of bringing lower-cost TV service to stations off main network routes & in less populous areas came in its ccomments on FCC's rule-making proceeding about private intercity links.



Ray W. Smith, Editor

Current stockmarket reports via Peatrophone . . .



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Never underestimate the value of Peatrophone service to a broker! Through Peatrophone, he can make current stockmarket prices available to customers at the flip of a telephone dial.

On-the-spot recordings can be made as often as necessary to reflect market changes—and if he wishes, the broker can use this same record to invite customers to call the firm's regular number for specific prices or to come in for a consultation.

Peatrophone stockmarket reports not only improve customer service, but also serve as a unique advertising medium to promote the firm name. Its ability to make on-the-spot recordings, its ease of operation and its low monthly rental charge make Peatrophone a "growth potential" investment for every broker on your list.

Call on the brokers today—and of course, don't forget your old friends the dairies, the laundries, the drug stores, the real estate offices and the dry cleaners —every one a potential *source of new revenue for your company!*

Write today for complete information and literature on Peatrophone—your new source of revenue
Note: Selective harmonic ringing subsets now available—all frequencies.

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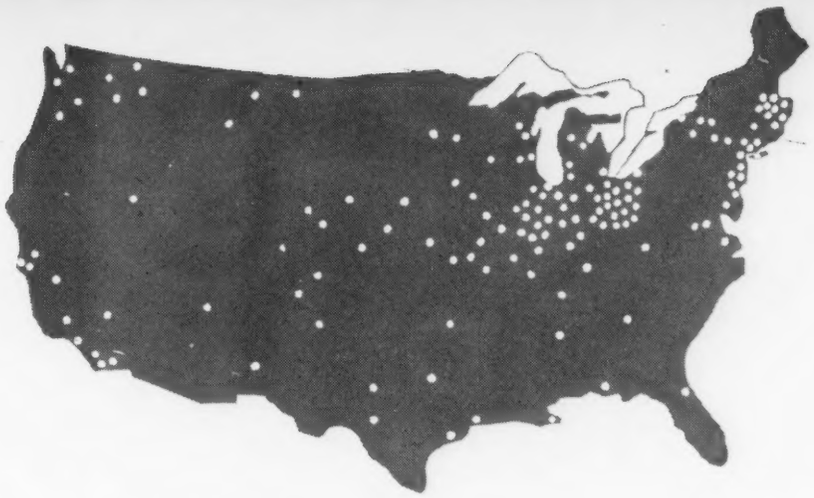

"It's No Trick at All"--

with KELLOGG'S more than 100 Distribution points across the nation--to get the kind of line supplies you need when you need them

Fast, flawless handling of line supply orders is our specialty — as a result we just naturally save you substantial time and money in the process. Here's why:

First of all, with six Branch Warehouses and over 100 Supplier Distribution points at our disposal, we can ship your order to the location nearest you. This way we're able to save you shipping costs and get the material to you faster!

Secondly, Kellogg stocks everything you'll ever possibly need for inside or outside use — right down to the last nut and bolt. And you can be sure that everything Kellogg ships has come through the most rigid quality and performance tests with flying colors!

Then, there's the careful, personal attention that is given every order regardless of size. Only experienced telephone men, who understand your problems, will be handling your order. It's their job to see to it that you get the materials that best fit your needs . . . and on time!

We think these are good reasons why you should send your next order for line supplies to Kellogg.

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☐ Have your representative contact me regarding your special values on outside plant construction materials.

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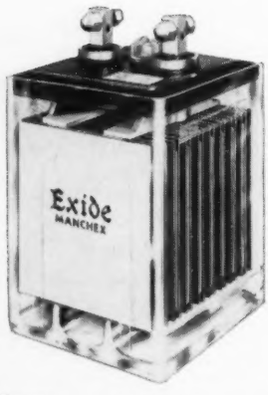
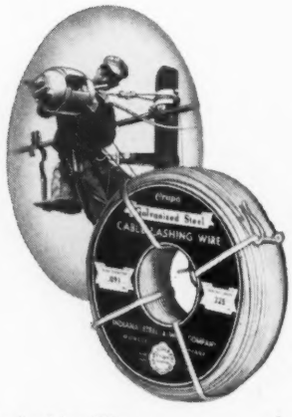
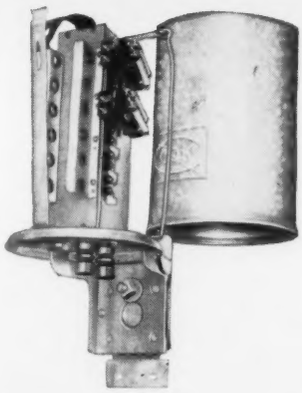


Time Proven — for 62 years, Exide Batteries have served the telephone industry. Manchester Positive plate and button type construction provide long life. Use Exide for all battery needs. Exide Indus. Div., ELECTRIC STORAGE BATTERY COMPANY.

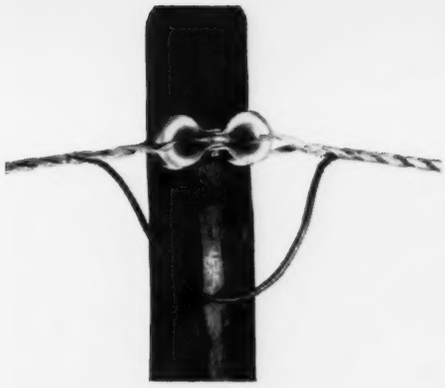


Cable Lashing Wire for use with modern Cable Spinners, Crapo Galvanized ("C" Coated) Lashing Wire available in .091" and .061" diameters. Wire also available in .045" and .065" diameters. Made by INDIANA STEEL & WIRE COMPANY.

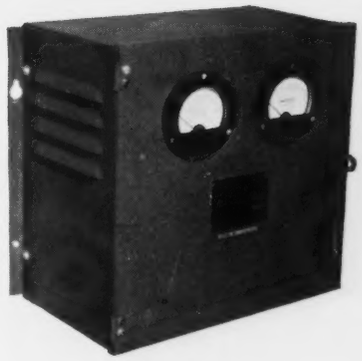
Simple, Quick and Sure! For splicing two wires of different sizes, there's nothing simpler than using Nicopress reducing sleeves and the Nicopress 31-DC tool. Splices are always tight and strong. Made by the NATIONAL TELEPHONE SUPPLY COMPANY.



For Use with Plastic Cable — the S-20V protected or unprotected Terminal has 2 cable entrances, arranged to take any size of compression coupling from 6 to 51 pair. Pipe Plug inserted when one cable entrance is required. COOK ELECTRIC COMPANY.



Dead-Ends for Plastic Cable —Designed for thermoplastic insulation, this fitting protects while firmly holding cable in elongated grip in which the unit pressure is small because of large area of gripping surface. PREFORMED LINE PRODUCTS COMPANY.



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For Decimonic Ringing Systems — The K-5Sub-Cycle supplies permanently accurate ringing frequencies and closely regulated ringing voltages. Requires little power to operate and minimum maintenance. LORAIN PRODUCTS CORPORATION.

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SALES OFFICES: 79 West Monroe Street

Industry NEWS Briefs

This is your department. The editor wants news regarding your company. Send news items and photographs to News Briefs' Editor, 7720 N. Sheridan Rd., Chicago 26, Ill.

U. S. Had 52,814,000 Telephones Jan 1. $16,150,000,000 Invested In Plant & Equipt.

THERE WERE 52,814,000 telephones in operation in the United States at the close of last year, a statistical summary made available last month shows. Of the total, 43,322,000 were Bell System stations, of which 84% were dial-operated with the total excluding 154,000 private line telephones. Another 1,383,000 were operated by the non-controlled Southern New England and Cincinnati & Suburban Bell Telephone Co.'s. 334,000 were switched by Bell companies, and 7,775,000 were operated by Independent telephone companies.

The summary showed an amount of $16,150,000,000 invested in plant and equipment by the industry at the close of last year, with some $14,131,000,000 accounted for by the Bell System. Total operating revenues last year were $5,440,000,000 for the industry, and $4,784,500,000 for the Bell System.

On Dec. 31, 1954, about 70% of the 46,800,000 households in the US had telephone service, it was reported. Of the estimated 94,400,000 telephones in the world, about 90,700,000 can be connected with the Bell System.

Average daily conversations, industry-wide, amounted to the total of 186,530,000 exchange and 6,870,000 toll, while the Bell System's portion of the totals was 153,041,000 exchange and 6,554,000 toll daily. The Bell System operating companies had 209,400 male employes, with 246,900 in the traffic department, at the year's end. Total Bell System employment, including the Western Electric Co. and the Bell Telephone Laboratories, was nearly 686,000.

Mansfield Telephone Co. Awards Building Contracts

THE MANSFIELD (Ohio) Telephone Co. recently awarded the contracts for its new building, to be erected this year, to the following contractors: *General Contract*, Mansfield Housing Co., $413,867.00; *Plumbing, heating and air conditioning*, The T. O. Murphy Co., Oberlin, Ohio, $189,380.00; *electrical*, Buchmans Electrical Construction Co., Mansfield, Ohio, $72,173.82.

Plans, specifications and supervision of the construction of the building will be under the direction of Colonel Wm. H. Kremer, Registered architect, Columbus, Ohio and Gustav Hirsch, consulting engineer of the telephone company.

New York Company's Corporate Plan OK'd

THE TRANSFER OF Citizens Telephone Co. from private to corporate ownership was authorized last month by the New York Public Service Commission. The company, which provides telephone service in the village and town of Hammond, N. Y., and in parts of the towns of Macomb, Morristown and Rossie in St. Lawrence County and in portions of the towns of Alexandria and Theresa, Jefferson County, is now owned by Pardon C. Smith of Hammond.

By PSC approval, Mr. Smith may now transfer ownership to the newly-formed Citizens Telephone Co. of Hammond, New York, Inc., in exchange for 420 shares of $100 par value common stock in the latter. The main reason for the change in ownership, according to testimony at a public hearing, is to place control of the company in an organization having a continuous existence under which the contemplated conversion of its plant to dial operation could be financed more readily than would be possible under personal ownership.

Mr. Smith is to continue as manager of the new firm and will lease space in his home for continued use as the company's exchange location.

In collateral actions, the PSC granted the new corporation operating rights in the territory it is to serve and approved the issuance of the stock to be given to Mr. Smith.

Albert Spry Purchases Michigan Company

MRS. MARY O'DONALD, owner and operator of the Community Telephone Co., Howard City, Mich., has sold the firm to Mr. and Mrs. Albert Spry of Detroit, Mich.

Mrs. O'Donald has owned and operated the company since 1926, when she and her late husband, Charles M. O'Donald, purchased the business from Sidney Reynolds.

Mr. Spry was owner and operator of the Redford Electrical Co., Detroit.

General of Northwest Seeks Rate Revision

GENERAL TELEPHONE Co. of the Northwest announced last month that it has filed revised schedules of tariffs for telephone service with the

for Republic Pressure Creosoted

TELEPHONE POLES... RAILROAD TIES... WOOD BLOCKS
LUMBER... CROSS ARMS... PILES... ANCHOR LOGS

Selected trees that become Republic Creosoting Company's white stock are pressure treated with Creosote. These timbers become engineering structures of exacting dimensional specifications and can be counted on for years of useful service.

It is smart to order Pressure Creosoted Wood products from Republic . . . made from selected trees . . . made resistant to attack from insects and fungi.

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(Continued From Page 18)

Washington Public Service Commission. The proposed changes in rates relate to toll and exchange services, and special services, and are designed to compensate for higher wage levels and other increased costs of operation experienced in the last three years.

Company officials report that General's last rate increase was authorized by the Commission in 1952 and that the company has granted two general wage increases to employes since that time, the last effective March 1 of this year. During the same period other costs have increased, particularly those related to large capital expenditures made by the company in connection with its program of expanding and improving telephone services.

The requested increase totaling about $300,000 would add only approximately $138,000 per year to the company's income, it was noted since nearly 54% of the total amount will be turned over to the federal and state governments in the form of taxes.

General operates 37 exchanges in the State of Washington.

$50,000,000 Trans-Canada TV System Scheduled For Completion in 1958

THE LONGEST microwave system in the world — more than 3,800 miles between Sydney, Nova Scotia, and Vancouver, B. C. — will carry trans-Canada television broadcasts by early 1958.

The system will be built in stages by Trans-Canada Telephone System, it was announced last month by Thomas W. Eadie, chairman of the system, and president of the Bell Telephone Co. of Canada.

The microwave equipment can be adapted to transmit color television programs.

About 140 relay stations will be required to complete the cross-country communications skyway, which also will provide for additional telephone circuits.

Mr. Eadie's statement coincided with one in the Canadian House of Commons by Revenue Minister McCann, who said the CBC will rent the micro-wave system to broadcast television programs nationally.

The Toronto-Winnipeg connection will be completed by the fall of 1956. Work on the 1,200-mile link started last May.

The 800-mile Winnipeg-Regina Calgary section is scheduled to go into service early in 1957, the 710-mile Quebec-Saint John-Sydney section in mid-1957 and the 580-mile Calgary-Vancouver section in early 1958.

However, the schedule may be altered to meet the dual requirements of television and telephone service.

Members of the Trans-Canada Telephone System are the Maritime Telegraph & Telephone Co., New Brunswick Telephone Co., Bell Telephone Co. of Canada, Manitoba Telephone System; Saskatchewan Government Telephones, Alberta Government Telephones and the British Columbia Telephone Co.

Each company will be responsible for construction of facilities in the area it serves. No estimate of the cost was given but unofficial estimates have put it at $50,000,000.

Initially, two continent-wide microwave channels in each direction will be installed on the network. This will provide television channels in each direction and long-haul telephone circuits — a further step toward the ultimate goal of transcontinental direct dialing of long-distance calls.

Cities readily accessible to the network route and either already served or to be connected as construction progesses are Sydney, Halifax, Saint John, Quebec, Montreal, Ottawa, Kingston, Peterborough, Toronto, North Bay, Timmins, Port Arthur, Fort William, Winnipeg, Regina, Saskatoon, Calgary, Edmonton and Vancouver.

Further extensions can be made to connect other points along the route when required.

The first Canadian microwave network carrying television programs was established in May, 1953. It connected Toronto, Ottawa, and Montreal.

This 340-mile network was supplemented by a 70-mile extension to Buffalo to provide a connection with U. S. television networks. Last summer a 180-mile microwave link from Montreal to Quebec went into operation.

The transcontinental television channels will enable programs originating in one part of Canada to be seen simultaneously on all stations served by the network.

General Plans $76,500 Project at Santa Maria, Calif.

GENERAL TELEPHONE CO., of Calif., will spend $76,500 in the Santa Maria, Calif., exchange during 1955 for additional and improved telephone service, according to E. W. Adler, manager.

The expansion and improvement program will include estimated expenditures of over $17,200 for dial office switching equipment; $31,500 for telephone instruments, PBX switchboards and supplemental equipment and $23,400 for cable and wire plant extensions and replacements. $4,400 will be allocated for miscellaneous equipment items.

In the Guadalupe and Los Alamos exchanges $27,000 and $5,800, respectively, will be spent for improvements and additions.

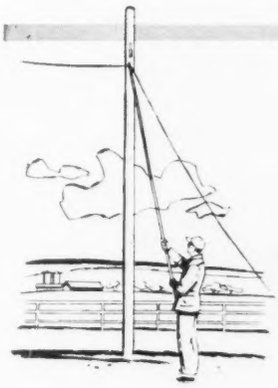
J. L. Zieg Dies At Campbellsville, Ky.

J. L. ZIEG, district manager for Southern Continental Telephone Co. at Campbellsville, Ky. died following a heart attack on February 19.

Mr. Zieg was born in York, Neb., on March 20, 1893 and began his career in the telephone industry in 1910 with the Northwestern Bell Telephone Co. in Nebraska. In 1925, Mr. Zieg moved to Henryetta, Okla., with the Southwestern Bell Telephone Co. and in 1927 he joined the United Telephone Corp. at Wagnor, Okla. In 1930 Mr. Zieg became associated with the Oklahoma Telephone Co. at Broken Arrow, Okla., and in 1932 he moved to Campbellsville, Ky., as district manager for the Southern Continental Telephone Co.

Mr. Zieg was a director of the Kentucky Independent Telephone Association and took an active interest in community affairs. He was a member of the First Presbyterian Church and served as chairman of its' Board of Deacons. He was also an active Mason, a member of the Campbellsville Rotary Club, a director of the Campbellsville Chamber of Commerce and for the past two

Automatic's pointers for plantmen



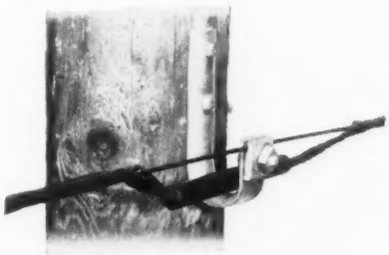
Here's how to save real money on rural installations

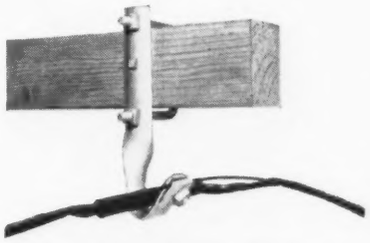
General Cable's new 6-pair rural distribution cable is making it possible to save tremendously on time, materials and labor. All it needs is a single bracket at each pole for proper attachment.

The six pairs of 19 gauge copper conductors are wound around a polyethylene insulated steel support wire with a breaking strength of 1800 pounds. The conductors themselves have their own polyethylene insulation plus a Gencaseal jacket. They are easily identified with one conductor of each pair sporting a different color — red, green, brown, slate, blue, and purple.

Investigate how you, too, can brighten up your rural profit picture with General Cable's rural distribution cable. Put in an order today. Cable is available in 2000 foot reels and 4000 foot reels.

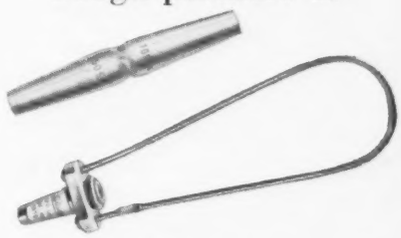
Here's all you need to support the cable





The "B" and "C" brackets fit hand-in-glove with rural distribution cable to save on installation costs. The steel core of the cable fits into the upper groove of either bracket clamp, which is all that's needed to hold the cable secure from pole to pole. The "B" bracket is used for mounting the cable directly to the pole, the "C" bracket for mounting to the cross arm. A "U"-bolt attachment on the "C" bracket fits around the cross arm. These and other pole line installation and supply tools can be had from Automatic Electric.

Tough partners in any "tug of war"



You never have to worry that the load will slip when Wirelink or Wirevise have the "bite" on it. Similar in design to famous Strandlink and Strandvise, they are made especially for splicing and deadending the steel core messenger of rural distribution cable. So fine is the quality of materials and workmanship of these sturdy connecting links that many telephone companies use Wirelink to splice their 12 BWG iron wire. Tough jaws of steel press on the wire, never to let go. The juncture is much stronger than any other part of the conductors.

Buy Automatic's *Approved* Supplies

Whether it's cable, wire, poles, tools or hardware you need, Automatic Electric has them for you. We have one of the largest selections in the industry. (The new catalog 8000 lists over 2500 supply items.)

And most of the time your orders are filled right off the warehouse shelves, without expensive delays for back orders. Our warehouses in various parts of the country are fully stocked and expertly staffed to serve you best. For convenience and economy, send your next order to Automatic Electric.

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years chairman of the Easter Seal Drive in Taylor County.

Survivors include his widow, Mrs. Nell Kennedy Zieg; a son, R. G. Zieg, Yakima, Wash.; a daughter, Mrs. J. C. Furkin, Campbellsville; five brothers, H. P., Chuck, William, and Jake Zieg, all of Omaha, and John Zieg, Los Angeles; two sisters, Miss Mary Zieg, Los Angeles, and Mrs. L. L. Min, Waukegan, Ill., and six grandchildren.

General of Ohio Installs 100,000th Phone

GENERAL TELEPHONE Co. of Ohio is now the 14th Independent telephone company in the nation to serve 100,000 telephones, according to Clare E. Williams, president of the company. General's 100,000th telephone was installed last month in the home of Mr. and Mrs. Lorice Sergent in the company's Plain City exchange.

Mr. and Mrs. Sergent and their four children recently moved to a farm near Plain City from London, Ohio. Mr. Sergent is a dairy farmer.

The Plain City exchange with more than 1,000 telephones is served by a modern dial installation placed in service by the company last April. In 1946 the Plain City exchange was acquired by General Telephone Co. along with other property of Ohio Standard Telephone Co. Since that time General Telephone Co. has installed 431 additional telephones to bring the total in the exchange to 1,085.

General Telephone Co. of Ohio had its beginning on August 18, 1924 when it was incorporated as Ohio Cities Telephone Co. at New Philadelphia-Dover, Ohio. The company expanded its operations in the next seven years and by the end of 1931 there were 25,629 telephones in 52 exchanges. At that time Marion, Ohio, was established as main headquarters and the name of the company was changed to Ohio Associated Telephone Co. The company operated under that name until June, 1952, when its present name was adopted.

The company continued to expand and began limited installations of dial systems until the outbreak of World War II. Following the war the company began major expansion moves. The first of these was the acquisition of Ohio Standard Tele-

MRS. LORICE SERGENT, seated, is shown placing the first call from her new telephone, General Telephone Co. of Ohio's 100,000th telephone. Looking on, left to right, are MR. SERGENT, EARL PATCH, General employe who made the installation, and ROBERT C. FESENMYER, General's central division commercial manager.

phone Co. consisting of 70 exchanges and about 26,000 telephones.

The company continued its improvement and expansion program for the next three years, and by the end of 1949 its operations included 138 exchanges with 74,546 telephones.

In 1950 the company announced a $10,000,000 expansion program for the next three years, and by the end of 1952 its expansion program had exceeded $12,000,000.

During 1953 and 1954 General spent over 8½ million dollars for expansion and improvement. At the end of 1954, assets of the company were $27,244,000 and the company operated 135 exchanges serving 98,966 telephones.

Highlights of the company's post war expansion have been:

1. An increase of nearly 40,000 telephones.
2. Installation of 52 new dial central offices and 172 operator switchboard positions.
3. The construction of 47 new central office buildings along with major additions to five.
4. The connection of 1,043 additional inter-exchange circuits for long dstance service.
5. Company personnel increased from 652 to 1,352, while the annual payroll increased from $891,000 to nearly $1,000,000.
6. Erection of 128,000 poles and the placement of 150,000 miles of copper and steel wire.

The company is a subsidiary of General Telephone Corporation, the 2nd largest telephone system which has operations in 21 states and provides service to more than 1,800,000 telephones. Eight of the 14 Independent telephone companies which serve more than 100,000 telephones are members of the General Telephone System.

Mr. Williams pointed out that nearly $4,000,000 will be spent by the company this year to meet continuing service demands in the General Telephone service area.

The company's 1352 employes were commended by Mr. Williams for their signal contribution to General's steady progress in expansion and improvement of service.

Ohio Consolidated Names R. C. Stearnes To New Post

R. N. COLE, president of Ohio Consolidated Telephone Co., has announced the appointment of Richard C. Stearnes, former assistant district manager, to succeed Burch M. Cline as district manager of the company's Wilmington district. Mr. Stearnes' promotion became effective March 1, in conjunction with the retirement of Mr. Cline after more than 41 years of service.

Mr. Stearnes has had over nine years of telephone experience. He entered the telephone business as a

RICHARD C. STEARNES

commercial representative at Portsmouth in June, 1945, after leaving the military service. He was in the 40th Infantry Division during World War II and spent nearly four years overseas.

Prior to his transfer to Wilmington as assistant district manager, Mr.

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yet it works better
It's Copperweld
TRADE MARK
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Any way you look at it, Copperweld* O-Eighty-Thirty is your best buy for subscriber loops and secondary toll lines. It won't rust . . . gives longer service . . . permits safer long spans . . . and requires fewer poles and accessories. What's more, Copperweld "talks better" than any other high-strength conductor. For prices, sag data and staking tables, write us today.
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1955--our 40th year
Copperweld O-Eighty-Thirty TELEPHONE LINE WIRE Diameter .080" 30% Conductivity
STOCKED AND SOLD BY LEADING DISTRIBUTORS

Stearnes had been district superintendent in the company's Cambridge district since October, 1951. The Cambridge district serves about the same number of telephone customers as the Wilmington district serves, approximately 7,000 customers. As district superintendent in Cambridge, he has had experience in all phases of district operations.

Mr. Stearnes was born and educated in Portsmouth, Ohio. He attended Ohio State University prior to entering the military service. He has been active in Portsmouth and Cambridge civic affairs and has more recently served as a Director of the Cambridge Kiwanis Club, also as a Director of the Cambridge Chamber of Commerce.

General O'Connell to Succeed General Back As Chief Signal Officer of The U. S. Army

THE SENATE last month confirmed the nomination of Major General James D. O'Connell as Chief Signal Officer of the Army and confirmed his permanent promotion to the rank of Major General. General O'Connell, who has been Deputy Chief Signal Officer since December 1951, will replace Major General George I. Back who is retiring from the Army on April 30.

General O'Connell was born in Chicago, Ill., on September 25, 1899. He graduated from high school there in 1917, attended the University of Chicago for one year, and then entered the U. S. Military Academy. He was graduated from the Academy and was commissioned a second lieutenant of Infantry on June 13, 1922.

His first assignment was with the Second Infantry with which he served at Fort Brady and Camp Custer, both in Michigan. In September 1924, he entered the Signal School at Camp Alfred Vail, New Jersey. He graduated in June 1925 and joined the 35th Infantry at Schofield Barracks, Hawaii.

In September 1928, General O'Connell was assigned to the 24th Infantry at Fort Benning, Ga. He became an instructor at the Signal School, Fort Monmouth, N. J., in December 1928. In August 1929, he entered Yale University from which he received a Master of Science degree in June 1930. He then returned to his position at the Signal School.

General O'Connell entered the Command and General Staff School, Fort Leavenworth, Kansas, in July 1936 and graduated a year later. He was then named officer-in-charge of the Specification and Records Section of the Signal Corps Engineering Laboratories at Fort Monmouth. In January 1940, he became executive officer of the Laboratories, and a year later was appointed officer-in-charge of Radio Communications Projects there.

In July 1942, General O'Connell was transferred to the Office of the Chief Signal Officer, Washington, D.C., as chief of the General Development Branch.

He was named executive officer of the Signal Supply Service in the Office of the Chief Signal Officer in January 1943. From July 1943 to June 1944 he was officer-in-charge of the Technical Section there.

In July 1944, General O'Connell was assigned as chief of the Requirements Branch, Signal Section, 12th Army Group, with which he served in England, France and Germany. He returned to the United States in August 1946 and in September of the same year he became Director of the Signal Corps Engineering Laboratories at Fort Monmouth.

In May 1947, General O'Connell was appointed Signal Officer of the Eighth Army in Japan. In September 1949, he became a member of the Signal Corps Board at Fort Monmouth and, in October 1949, was named Deputy President of the Board. From January to March 1950, he served on temporary duty with the Army Field Forces at Fort Monroe, Va., as a member of the Army Equipment Policy Panel, after which he resumed his position as Deputy President of the Signal Corps Board at Fort Monmouth.

In August 1951, General O'Connell was assigned to the Special Assignment Group, Boards and Committees, in the Office of the Chief Signal Officer. In December 1951, he assumed duties as the Deputy Chief Signal Officer. By approval of his nomination by the Senate on March 14, 1955, General O'Connell became the seventeenth Chief Signal Officer of the U. S. Army.

General O'Connell has been awarded the Legion of Merit with Oak Leaf Cluster.

He is married to the former Edith Chase Schlosberg, and with their two children, Peter Dunne, 20, and Sally Ann, 15, resides at 4732 Sedgwick Street, N. W., Washington, D.C. His permanent residence is in Chicago, Ill.

General of Illinois Sells New 3.3% Bond Series,

GENERAL TELEPHONE CO. of Illinois last month sold at par $3,250,000 principal amount of first mortgage bonds, 3.3% series due 1985, and at the same time called for redemption bonds in the same amount at 3⅞% due in 1982. Call price on the redeemed bonds was 103.93%.

Peoples Tel. Corp. Reports Good Year for 1954

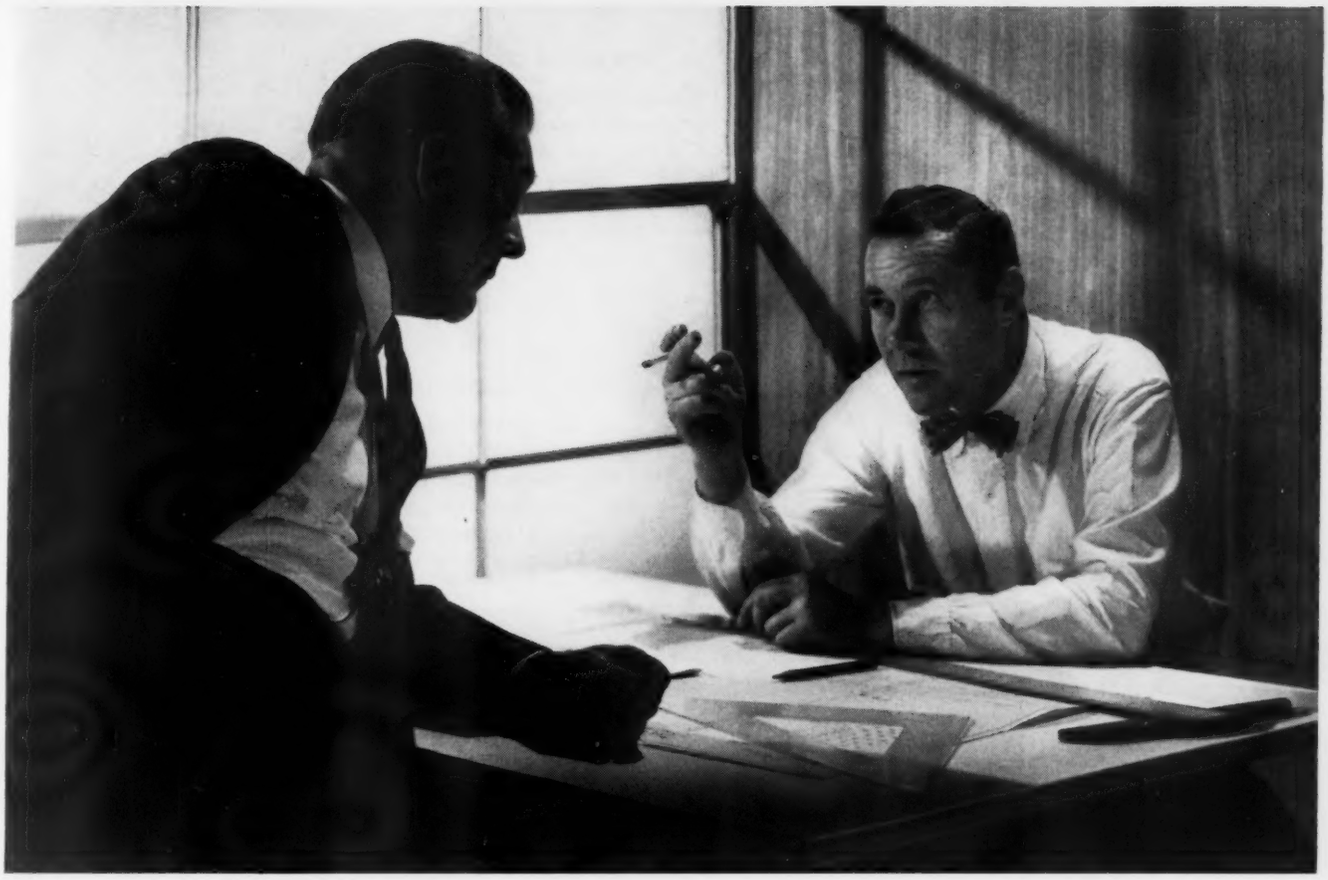
ZENO F. HENNINGER, president of the Peoples Telephone Corp., Butler, Pa., told stockholders last month that the progress and growth experienced by the Peoples Telephone Corp. in recent years continued through 1954 and promises to continue through 1955.

Net profit for 1954 exceeded interest and preferred stock dividend requirements by $204,315.62, equivalent to $6.69 a share on the 30,500 shares of $50 par value common stock outstanding at year end. Four quarterly dividends of 75¢ per share were declared and paid on the common stock during 1954, leaving a balance of $113,190.62 to be added to surplus.

Customer demand for telephone service continued through 1954. During the year, 1119 telephones were added, bringing the total to 25,412. A large construction program resulted in gross additions of $916,917.89. The waiting list for telephones was reduced to 588. The continued demand for telephones calls for a construction budget of $912,471 for the year 1955.

United Utilities Earns $1.56 Per Share In '54

EARNINGS PER average share of $1.56 during 1954, compared with $1.66 the preceding year on a smaller number of shares, were reported last month by United Utilities, Inc. Income available for dividends and sur-



"Lenkurt's new '45 Carrier Concept' can really cut our capital investment!"

"These Lenkurt people have an idea—a *big* idea they call the '45 Carrier Concept'." It sweeps away once and for all the notion that interconnection between carrier systems used on open wire, cable, and radio must be on a voice frequency basis. It eliminates the need for a complete terminal at each junction to convert from carrier to voice frequencies and back again. This concept is the foundation of Lenkurt's new 45-class Carrier Systems: *interconnection at carrier frequencies!*"

Let's look at the advantages:

1. *Economy*: Many modulating and demodulating steps eliminated, with consequent big savings in equipment.
2. *Flexibility*: In engineering complete toll systems, you can use the facilities which are best adapted for each part of the route and still keep your equipment cost economically low.
3. *Performance*: Reduction in modulating and demodulating steps removes many sources of distortion.

Three 45-class systems are now available: the 45A (12-channel, open wire), and the 45BX (120-channel, radio), the 45BN (24-channel, cable). Other systems are under development.

Send today for helpful literature on 45A, 45BN, and 45BX.

For the toll plant engineer: All 45-class systems use the same, two-stage modulating plan. In the "pre-group" stage, four channels are placed in the 8-24kc range; in the "base-group" stage, three pre-groups (12-channels) are placed in the 40-88kc range. Since all 45-class systems use these same frequencies, then can be interconnected at the "pre-group" and "base-group" stage.

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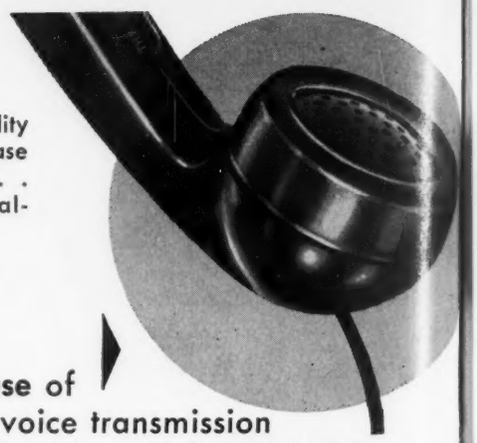
combining beauty with utility . . . a streamlined stronger case of high impact plastic . . . lighter, shorter, better balanced handpiece . . .



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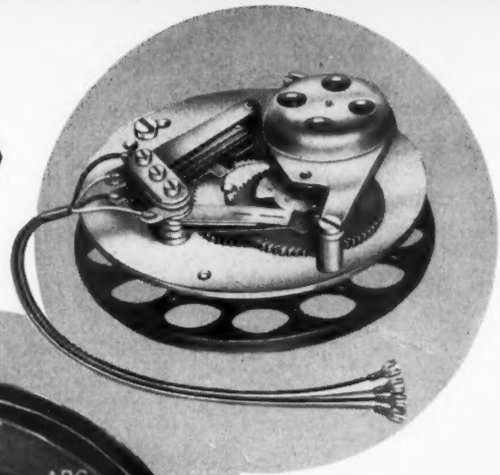
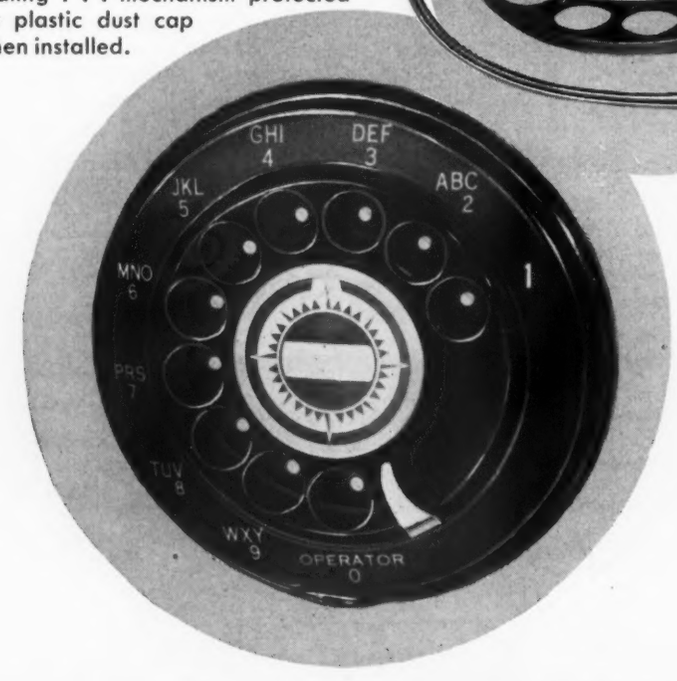
. . . because of completely new dial
. . . easily detached for adjustment or inspection when case is removed . . . extra large diameter governor provides smooth operation with more positive control . . . non-stick gear train made without worm gears . . . quiet . . . "feather touch" dialing . . . mechanism protected by plastic dust cap when installed.

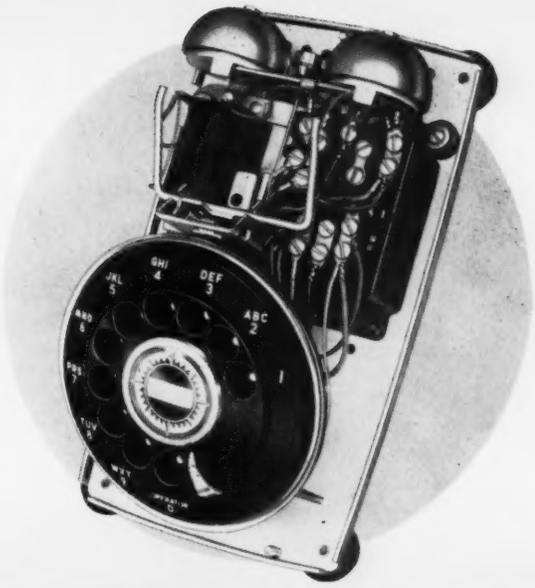




And **because of other optional features**
—hook-switch latch, push-to-talk handpiece, push button signaling, 1-2-line switching, and super-imposed ringing.

NORTH

. . . **because**
of its new high impedance ringer
—single coil with laminated core . . . better than 100,000 ohms resistance at 1,000 cycles . . . all frequencies, harmonic, decimonic, synchromonic and straight line ringing are available . . .



. . . **because** of advanced
mechanical design . . . chassis type base with completely removable case. Ringer, condenser, capacitors, compensating network, dial, all are base-mounted and readily accessible . . .

Outstanding N-541

is the most improved telephone you can get

because • • • of its capability of delivering higher db gain, improved voice transmission; because of modern design, higher impedance ringer, advanced mechanical arrangement, completely new dial, external volume control and additional optional features.

The N-541 is a truly *all* new telephone of distinctive North design serving the multi-purpose of improved service and lower maintenance. It will help build customer satisfaction and goodwill and will quickly prove to be a wise investment for you.

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plus last year amounted to $2,167,000, compared with $1,839,000 in 1953.

President Alden L. Hart said that telephones served by United companies, as of Dec. 31, totaled 358,213, a gain of 15,314 for the year.

It was brought out that United Telephone Co. of Missouri has entered into an agreement, approved by the Missouri Public Service Commission, to buy the Cass County Telephone Co., serving 2537 telephones out of exchanges at Harrisonville and Pleasant Hill, Mo.

During the year, Mr. Hart said, United companies received rate adjustments totaling $589,000 annually. He added that an application for about $316,000 is pending, and that applications for another $202,000 will be filed in the near future.

United's Board of Directors has declared the company's 40th consecutive quarterly dividend, at the rate of 27½ cents a share, payable March 31 to stockholders of record March 11.

Southern Bell Reports Earnings Up In '54

THE SOUTHERN BELL Telephone & Telegraph Co., which observed its 75th anniversary during the year, spent some $188,000,000 in 1954 in the continuance of a construction program that has called for expenditures of more than $1.3 billion in the past decade, President Fred J. Turner stated in his annual report to stockholders.

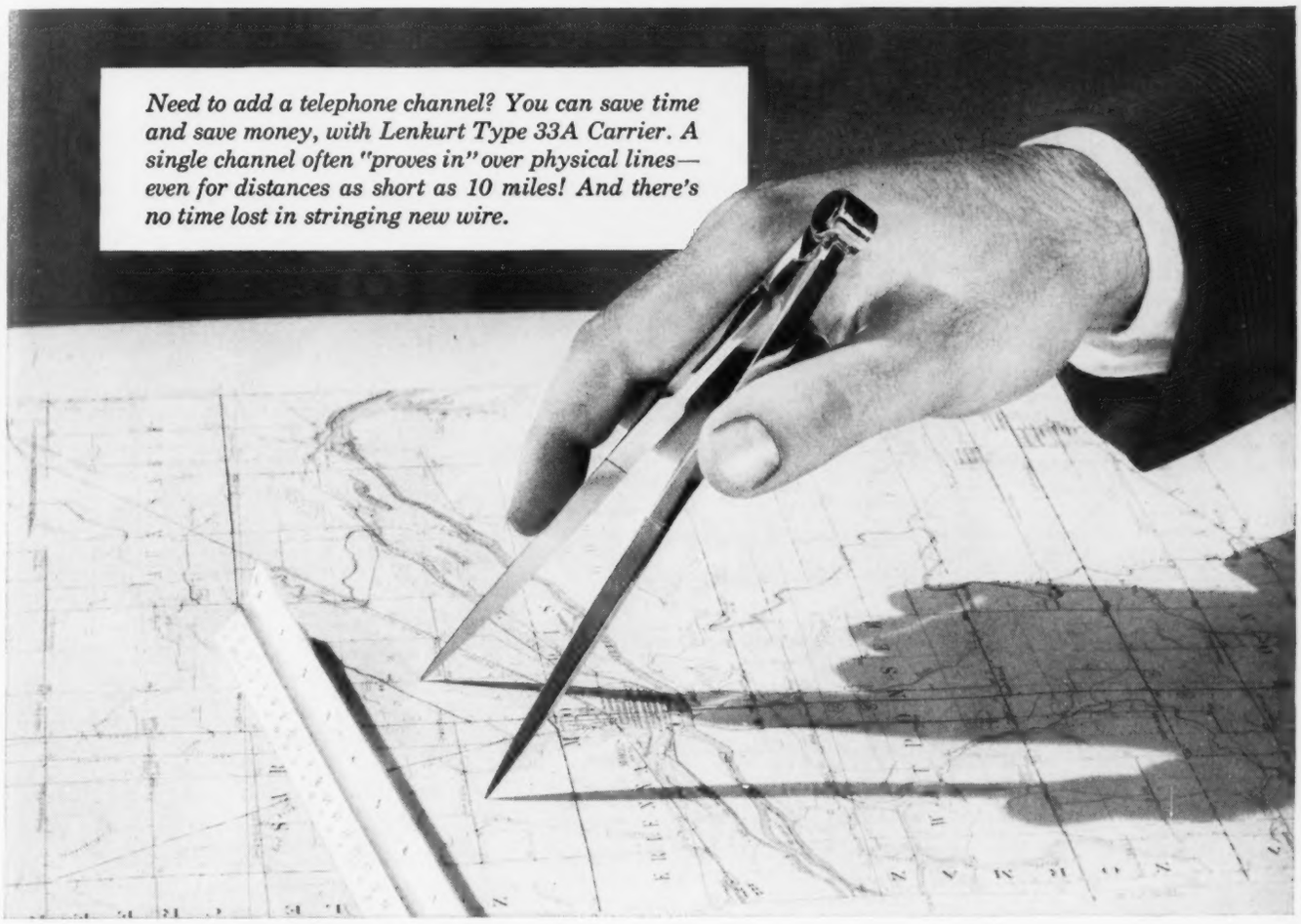
The company had a net gain of about 295,000 telephones last year to bring the total number of telephones in service to 4,552,437. At the end of 1954 the number of held orders for service had been reduced from 153,259 at the end of 1953 to 79,663 — the lowest in 11 years. At the same time, the number of upgrade requests had been reduced from 214,144 to 126,657.

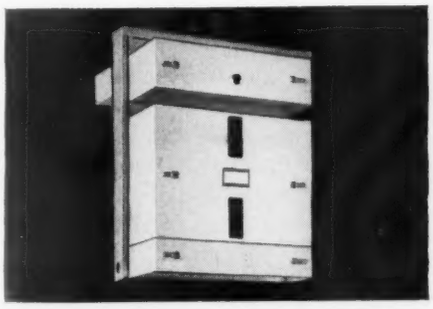
"The stepped-up economy of the South is reflected in the number of telephones now in use," the report points out. The number now in service compares with 1,863,204 at the end of 1945. Telephones in rural areas increased by about 90,000 last year to a total of approximately 644,000, compared with 171,000 at the end of 1945.

On the financial side, earnings last year were 4.9% on telephone plant

problem:

to add one channel—10 miles long


Need to add a telephone channel? You can save time and save money, with Lenkurt Type 33A Carrier. A single channel often "proves in" over physical lines—even for distances as short as 10 miles! And there's no time lost in stringing new wire.



Lenkurt Type 33A Carrier

gives you new telephone channels with

- ***no new poles***
- ***no new lines***
- ***no added construction crew***

— just this simple, compact unit —

- ***EASY to install —***

(Carrier can be in operation in less than a week after equipment arrives.)

- ***EASY to maintain —***

(Your own men can service it with simple, low-cost equipment.)

You can start small and expand. With Lenkurt Type 33A Carrier you can begin with a single channel, add a second, then a third; add more Type 33A channels on nearby pairs; and if still heavier traffic demands it, add Lenkurt high-frequency systems above these channels, on the same lines!

It's easy to install. With Lenkurt Type 33A Carrier you simply bolt a compact, factory-assembled, factory-tested unit in place; hook up line, power, voice termination, and ground connections—and cut it in! (Compare this with the delay and confusion involved in stringing new lines—purchasing a wide range of hardware, finding time when a line crew can be freed for the job, scheduling other line and maintenance work around this.)

If you have a communication problem, however large or small—Lenkurt Carrier can solve it at a saving in time and money! Write for Bulletin TM33A-P20 . . . or consult Automatic Electric carrier engineers for their specific recommendations. Address Automatic Electric Sales Corporation, 1033 West Van Buren Street, Chicago 7, Illinois or call HAymarket 1-4300. *Offices in principal cities.*

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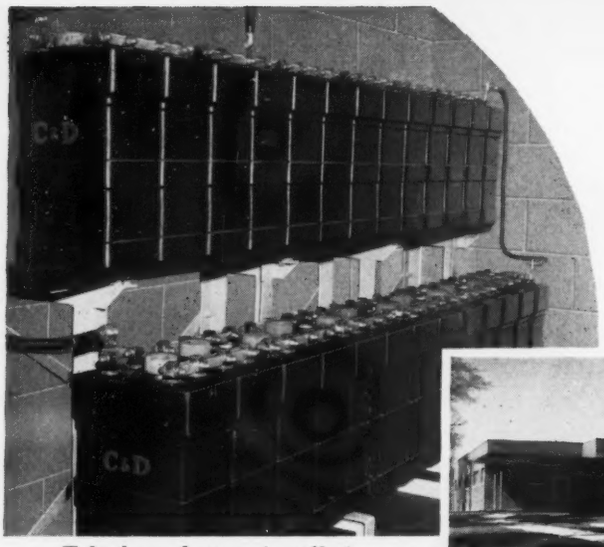

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1. Easier maintenance, because patented Post Seal eliminates acid creepage.
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For details and specifications on C&D telephone batteries, write for Bulletins T-527 and T-528.

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SALES AND SERVICE OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST

investment. Total operating revenues last year of $465,735,929 compared with $432,062,692 in 1953. After taxes and other expenses, net income of Southern Bell last year totaled $56,994,339, compared with $50,954,431 in the previous 12 months.

Southwestern Bell Plans Record Construction Program

THE SOUTHWESTERN Bell Telephone Co., which spent $173,625,000 on gross construction in 1954, plans a record-breaking $183,000,000 construction program during the present year, it was pointed out in the annual report issued last month.

The company gained 200,500 telephones in 1954 and at year's end was serving 4,496,000. During the year, the company reduced its held applications for service by 65%, leaving only 11,170 as compared with 140,000 just five years ago.

Net income for 1954 was $65,334,000, compared with $55,333,000 in the previous 12-month period. At the same time, the telephone plant investment increased to $1,420,610,000, double what it was just six years ago.

With more telephones in service than ever before, people of the Southwest placed more calls than in any year since telephony began, the report pointed out. Each day, they placed an average of more than 25,000,000 local calls and more than half a million long distance calls, about double the daily average of 10 years ago.

Long distance calls went through faster. Operators completed the average long distance call in 96 seconds — an improvement of 11% over 1953.

Indiana Bell Reports 33,546 Gain In Stations

APPROXIMATELY $19,000,000 was spent by the Indiana Bell Telephone Co. on the construction of new facilities in 1954 as the company continued its expansion and improvement program, stockholders were advised by President Harry S. Hanna in the annual report issued last month.

The company had a net gain last year of 33,546 telephones, and its construction program included dial conversions in nine communities, major additions at a number of loca-

Spotlighting toll service—

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...protects toll revenues

Photo courtesy of
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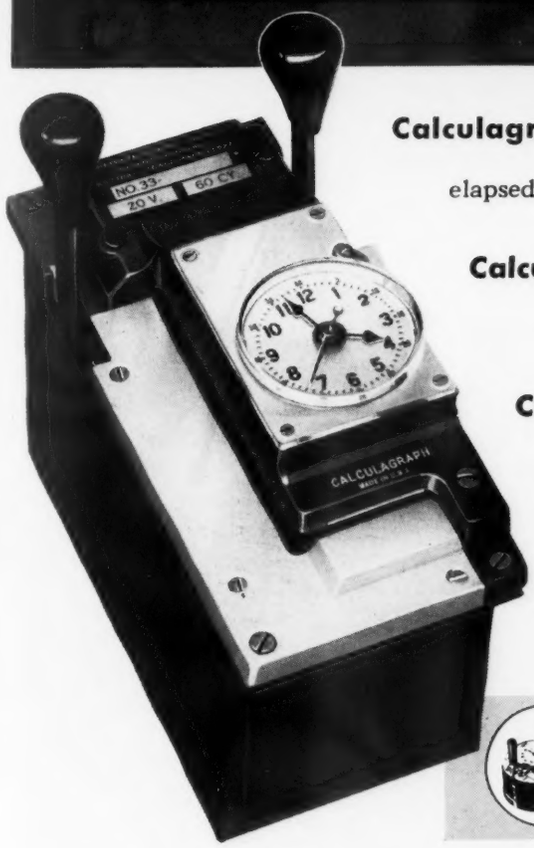

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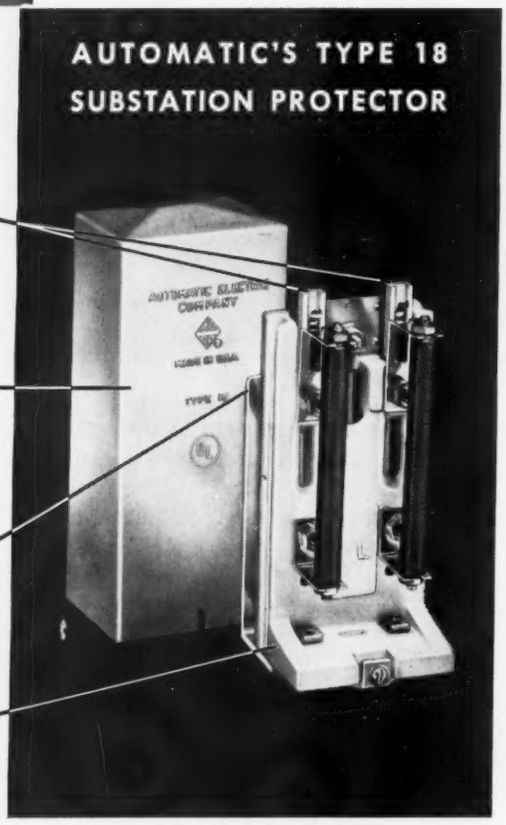

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tions, and the introduction of the 2-5 numbering system to about a third of the telephones in Indianapolis and in five other communities where dial service was established.

"Income available for interest and dividends continued to decline in relation to the current value of the property necessary to provide service, although it increased somewhat in dollars," Mr. Hanna stated. "We earned about five cents per dollar of value in 1952, about 4½ cents for 1953, about 4¼ cents for 1954."

Total operating revenues of the company in 1954 were $69,983,978, compared with $66,988,263 for the previous year. Operating expenses last year totaled $48,880,925, against $46,637,275 in 1953. After other expenses, including taxes of $13,048,890, the net income for 1954 was $7,975,918, compared with $7,658,671 in the previous 12 months.

New York Tel. Reports Drop In Earnings

The New York Telephone Co. failed to earn its customary dividend for 1954 by $3,721,177, Keith S. McHugh, president, announced last month. The 1953 dividend was earned with a margin of nearly $2,000,000.

The company's earnings in 1954 dropped to $7.55 per common share from $8.26 per share in 1953 and $8.97 in 1952, Mr. McHugh pointed out.

Operating expenses and taxes increased at a faster rate than revenues, he said. The 6.2 per cent gain in operating revenues, from $653,966,753 to $694,320,150 largely reflected an increase of almost 250,000 in the number of telephones served. This was overshadowed, however, by a 7.0 per cent rise in operating expenses and taxes.

Net income for 1954 was $62,248,040 compared with $64,500,781 for 1953. This drop of $2,252,741 occured in the face of an increase of more than $84,000,000 in the shareowners' investment. Total investment increased more than $103,000,000 during the year.

For the last quarter of 1954, operating revenues amounted to $182,283,707 compared with $169,108,581 for the same period last year. Net income for the quarter

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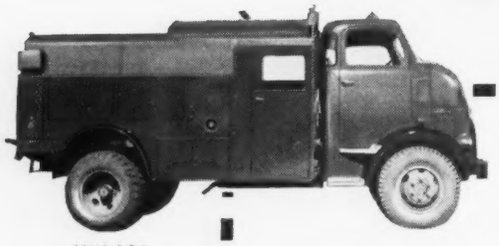
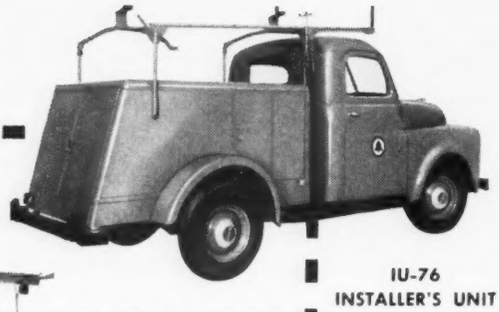
HIGHWAY

LINE CONSTRUCTION AND MAINTENANCE EQUIPMENT

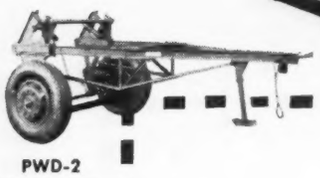
HC EARTH BORING MACHINE



MW-128 UTILITY TRUCK BODY



IU-76 INSTALLER'S UNIT



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SALES AND SERVICE IN PRINCIPAL CITIES

was $15,954,248 in 1954 as against $17,206,994 in 1953.

Henson Named Chief Engineer at Lincoln

APPOINTMENTS TO executive and managerial positions in The Lincoln (Neb.) Telephone & Telegraph Co. have been announced by Merle M. Hale, vice-president. They became effective March 1.

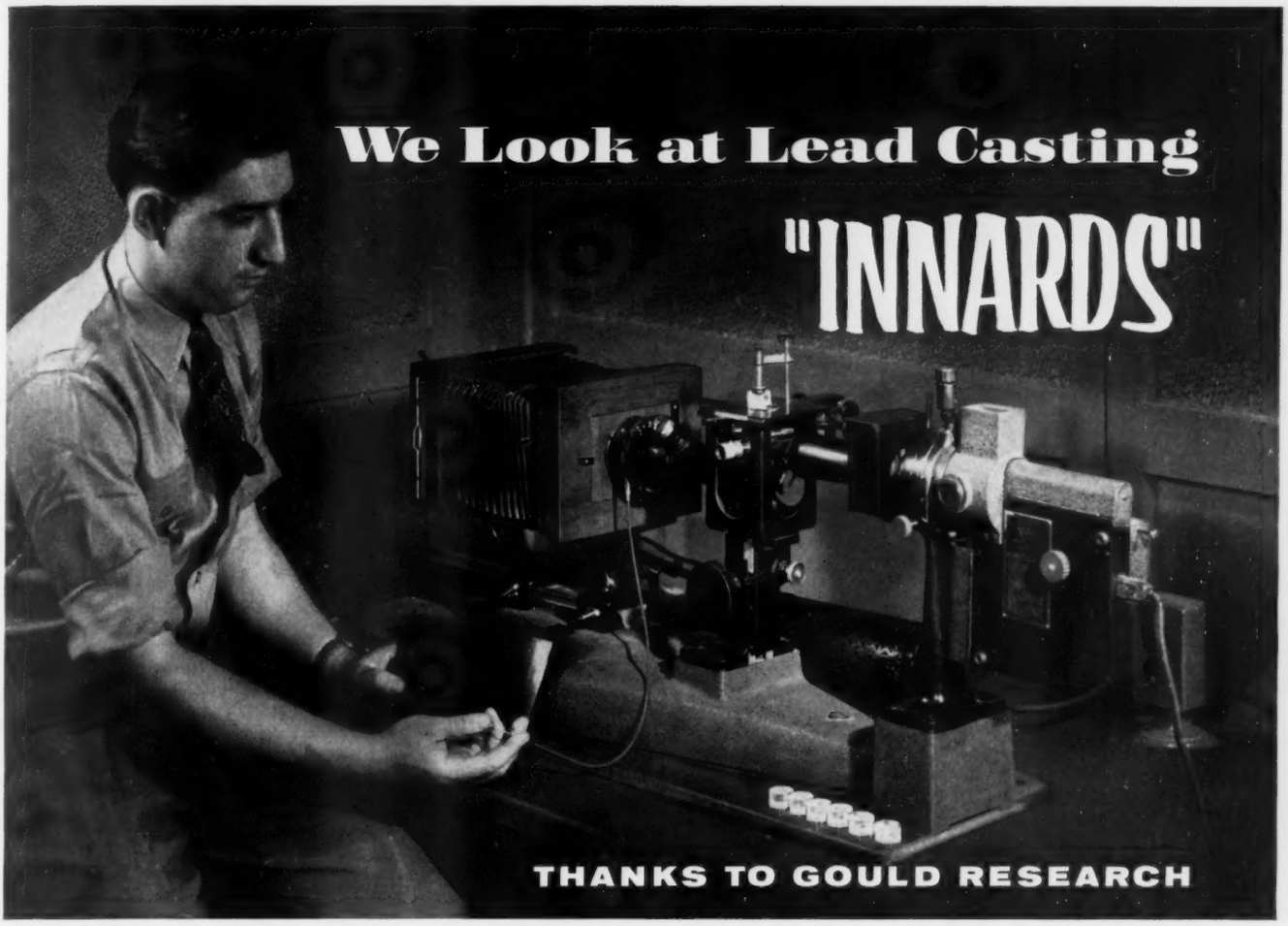
Paul H. Henson has been named chief engineer to succeed C. C. Donley, who died December 26, 1954. Howard W. Spahnle succeeds Mr.

PAUL H. HENSON

Henson as eastern district manager; and Tyler W. Ryan, formerly area manager at Tecumseh, becomes commercial engineer at Lincoln. Succeeding Mr. Ryan at Tecumseh is Joseph D. Adamson, formerly district clerk at Hastings. George E. Eggleston, formerly exchange manager at Pawnee City, has been appointed area manager there. This creates a new area office for the company.

Mr. Henson joined the company in 1942 as a warehouseman at Lincoln. During World War II he was a fighter pilot with the 14th Air Force and following the war served as an officer with the Nebraska National Guard. He returned to the company in 1946 as a warehouseman and became an advanced clerk in the general traffic department later that year. He was named equipment engineer in February 1948 and in July 1948 became junior engineer in the engineering department. He was appointed transmission and protection

Please Turn To Page 36



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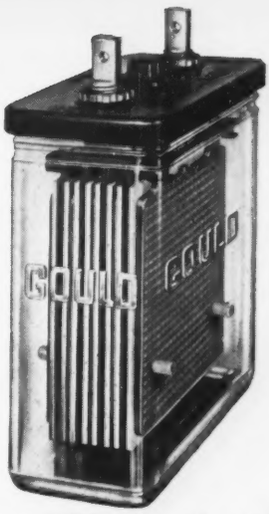

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engineer in 1949 and last year became eastern district manager.

A member of the plant sub-committee of the United States Independent Telephone Association, Henson has made several appearances as a speaker on engineering subjects at national meetings of that organization. He is a graduate of the University of Nebraska with a Master of Science degree in electrical engineering and in recent years has pursued a course of study at the University in the fields of physics and mathematics under the H. H. Wheeler research fellowship. He is a member of the Society of Professional Engineers, American Institute of Electrical Engineering, Institute of Radio Engineering and the honorary engineering and science societies of Sigma XI, Eta Kappa Nu and Sigma Tau. He is also a member of the American Legion, Lincoln Chamber of Commerce, Sertoma Club, Lancaster Lodge No. 54, A. F. and A. M., and serves on the Board of Trustees of First Presbyterian Church.

Spahnle joined the company in 1932 as a salesman in the Lincoln business office. During 1935 and 1936 he was assigned to the Hastings office, returning to Lincoln as a commercial representative. He became directory compilation supervisor in 1946, directory manager in 1950, sales manager in 1951, and in 1952 was appointed commercial engineer on the staff of the general commercial superintendent.

Active in civic and fraternal organizations, he is president of the Optimist Club, chairman of the Contact Club of the Lincoln Chamber of Commerce, and first vice-chairman of the Lancaster County Chapter of the American Red Cross. A former vice-president of the Junior Chamber of Commerce, he is a member of the Frank H. Woods Chapter, Independent Telephone Pioneer Association; Lancaster Lodge No. 54, A. F. & A. M.; Lincoln Lodge No. 80, B.P.O. Elks; the American Legion; and Holy Trinity Church.

HOWARD W. SPAHNLE, Eastern dist. mgr., Lincoln Tel. & Tel. Co.

TYLER W. RYAN, commercial engineer Lincoln Tel. & Tel. Co.

JOSEPH D. ADAMSON, area mgr., Lincoln Tel. & Tel. Co., Tecumseh, Neb.

Spahnle attended the University of Nebraska and is a graduate of the Command General Staff School at Ft. Leavenworth, Kansas. During World War II he was a Major in the Signal Corps and spent three years in the Army, during thirteen months of which he was stationed in Alaska.

Mr. Ryan joined the company in 1934 as a salesman at Lincoln. He became manager at Milford in 1938, assistant area manager at Seward in 1939, and manager at Humboldt in 1941. In 1942 he was advanced to area manager at Wilber and served there until 1944 when he entered military service. Returning to the company in 1945, he was appointed district clerk at Beatrice and in 1946 became area manager at Tecumseh.

Mr. Adamson joined the company in 1946 as an installer and repairman at Nelson. He later worked at Superior and Edgar before becoming manager at Edgar in February 1951. He was appointed district clerk at Hastings in September 1951.

Eggleston has been with the company since 1942 when he was employed as a shopman in the supply department at Lincoln. He became an installer and repairman in 1943 at Beatrice and the following year was transferred to Auburn, where he was stationed until July 1945 when he entered military service for a year. He returned to Lincoln in 1946 and was assigned to work with dial switching equipment, returning to Auburn as an installer and repairman later that year. He became exchange manager at Pawnee City in 1951.

Stanley Bracken Retires From Western Electric

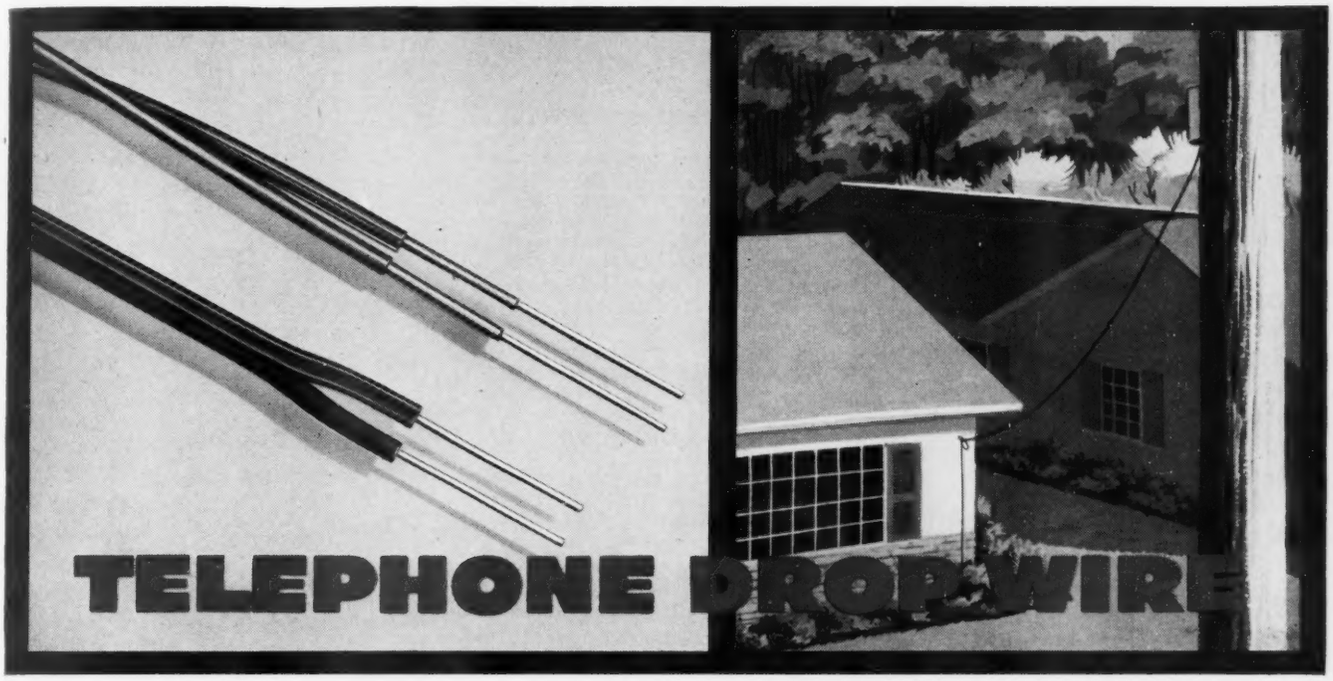
STANLEY BRACKEN, former president and now chairman of the board of the Western Electric Co., concluded 43 years of service with that company when he retired March 31.

Mr. Bracken, who began as a student engineer at Hawthorne in 1912, rose through many responsible posts, including Western Electric consultant to the Sumitomo Electric Wire & Cable Works in Japan, president of the Teletype Corp., and then vice president of Western Electric. As president, Mr. Bracken's administrative ability and leadership were strong factors in steering the company successfully through six years of the postwar period.

Indiana Bell Names Sparks Gen. Plant Mgr.

GEORGE F. SPARKS, assistant vice president in the operating department of the Indiana Bell Telephone Co., has been appointed general plant manager and E. K. Goss, who has

THE GREATEST NAME IN ELECTRICAL WIRE AND CABLE



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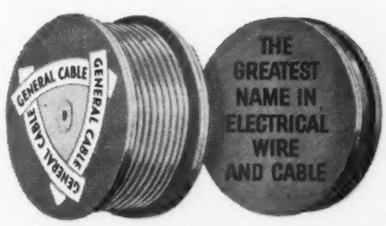

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headed the company's plant department since 1943, has become assistant vice president, reporting to vice president and general manager Roy C. Echols, it was announced last month.

Mr. Sparks, who began his telephone career in 1929 as a clerk for the American Telephone & Telegraph Co. Long Lines Department, served in the Long Lines accounting department until he was appointed area traffic manager in Kansas City in 1951. In 1953, he became general accountant in the AT&T Comptroller's Department, and joined Indiana Bell as assistant vice president last September.

Prior to becoming general plant manager of Indiana Bell in 1943, Mr. Goss held a number of plant assignments, including plant engineer, general plant supervisor, and division plant superintendent. He began his telephone service in 1920 as a student engineer.

20,000th Telephone Installed at San Angelo

WHEN 2ND LT. AND Mrs. Robert R. Tuttle moved to San Angelo, Tex., from Dallas, they didn't expect they were to become celebrities when their telephone was installed by General Telephone Co. of the Southwest.

But they did. Their telephone happened to be the 20,000th telephone installed in San Angelo.

A number of dignitaries crowded the Tuttle apartment in San Angelo, March 11, to watch Leslie H. Warner, president of the firm that manufactured the telephone which became the 20,000th in service in San Angelo, place the cover on the terminal in the apartment that completed the installation. Warner is president of the Leich Electric Co., Chicago, a subsidiary of the General Telephone System.

Mrs. Tuttle then placed the first call on her new telephone to her mother, Mrs. Ledia Harkness, in Stuttgart, Ark. Lieutenant Tuttle, who is personal affairs officer at Goodfellow Air Force Base in San Angelo, was on hand for the christening call. It was the first time Mrs. Tuttle had talked to her mother since she and Lt. Tuttle were married four months ago.

Afterwards, San Angelo Mayor M. D. Bryant called Gov. Allan Shivers in Austin. Mrs. Tuttle, wearing a corsage presented to her by Walter

WALTER G. WRIGHT, president of General Telephone Company of the Southwest, converses with THOMAS A. BOYD, senior vice president of General Telephone System in New York City. Boyd surprised the group with a congratulatory call regarding the installation of the 20,000th telephone in San Angelo by General Telephone Co. of the Southwest. MRS. ROBERT R. TUTTLE, in whose apartment the 20,000th telephone was installed, and RUSSELL WILLIS, manager of the San Angelo Chamber of Commerce (standing), and M. D. BRYANT, San Angelo Mayor, are pictured with Wright.

G. Wright, president of General Telephone Company of the Southwest, also talked to the Governor. The Governor congratulated General for the excellent manner in which the company had kept pace with the rapid growth of San Angelo.

The long distance calls were a gift from the telephone company.

A surprise was a call from Thomas A. Boyd, senior vice president, of General Telephone System in New York City to Mrs. Tuttle to congratulate her for becoming the subscriber to the 20,000th telephone in San Angelo.

FINAL INSTALLATION of the 20,000th telephone installed by General Telephone Company of the Southwest in San Angelo is made by LESLIE H. WARNER of Chicago, president of the Leich Electric Co., manufacturers of the instrument which was installed. B. G. FOWLER, installer for General, and MRS. ROBERT R. TUTTLE, who became subscriber to General's 20,000th telephone in San Angelo, observe final installation step.

Other telephone company officials present for the installation ceremonies included John E. Robbins Jr., division manager, R. R. McCullough, district manager, and representatives of the company's public relations department. The San Angelo Chamber of Commerce was represented by Russell Willis, manager.

By reaching 20,000 telephones, San Angelo became the first exchange of General Telephone Co. of the Southwest and the 16th exchange in the General Telephone System to reach the 20,000-telephone mark.

J. L. Lyne Retires from Lincoln T & T

J. L. LYNE, outside plant engineer of The Lincoln (Neb.) Telephone & Telegraph Co., retired April 1 after 41 years in the telephone business and was succeeded by B. A. Isaman, formerly an engineer. This was announced by P. H. Henson, chief engineer. R. V. Clifford, chief clerk in the company's construction department, will become an engineer in the outside plant division; and O. D. Spencer, formerly a draftsman, will become an engineering assistant in field engineering.

Mr. Lyne started with the company as a groundman at Hastings in 1914 and later was a shopman and combinationman before moving to Lincoln in 1919 as a clerk in the plant engineering department. He later became a draftsman in the engineering department and was advanced to outside plant engineer in 1923.

Isaman was first employed at Hastings in 1935 as a groundman, becoming a testboardman in 1937 and a switchboardman in 1942. In 1946 he moved to Humboldt as manager and became an engineering assistant at Lincoln in 1948 and an engineer last year. He now advances to the supervisory position of outside plant engineer.

Clifford has been with the company since 1930 when he was employed in the engineering department as a clerk. He became chief clerk in the construction department in 1942 and now becomes an engineer in the engineering department.

Spencer joined the company in 1952 as a draftsman and in his new

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INTERNATIONAL cab-forward RC-180 Series equipped with special line construction body with 4-man integral crew compartment. Famous Comfo-Vision cab. Choice of gasoline or LPG power. GVW ratings, 17,000 to 21,000 lbs. Wheelbases, 112 to 172 inches.

Built to save money

There's nothing like cab-forward INTERNATIONAL models to cut the costs of service jobs requiring the transport of bulky equipment and a number of men.

These short-wheelbase trucks, with their short turning radius, provide quick, easy maneuverability in narrow alleys, congested streets and other hard-to-get-around-in areas. They spend less time getting to the job and away from it—let your crews do more productive work each day.

And these INTERNATIONALS save you money further because they are built with famous INTERNATIONAL quality, Tough-Job engineering and all-truck design. Because they have all the features for long life, low-cost operation and maintenance that have made INTERNATIONAL the heavy-duty sales leader for 23 straight years.

Call your INTERNATIONAL Dealer or Branch representative and ask for complete details on the model or models best suited to your needs.

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WORLD'S MOST COMPLETE TRUCK LINE

200 basic models from ½-ton pickups to 90,000 lbs. GVW off-highway models, including six-wheel, four-wheel-drive, cab-forward, cab-over-engine and multi-stop delivery types . . . 32 engines from 108 to 356 hp., with widest choice of gasoline, LPG, or diesel power . . . wheelbases, transmissions, axle ratios for any need . . . thousands of variations for exact job specialization.

International Harvester Builds **McCORMICK**® Farm Equipment and **FARMALL**® Tractors...Motor Trucks...Industrial Power...Refrigerators and Freezers

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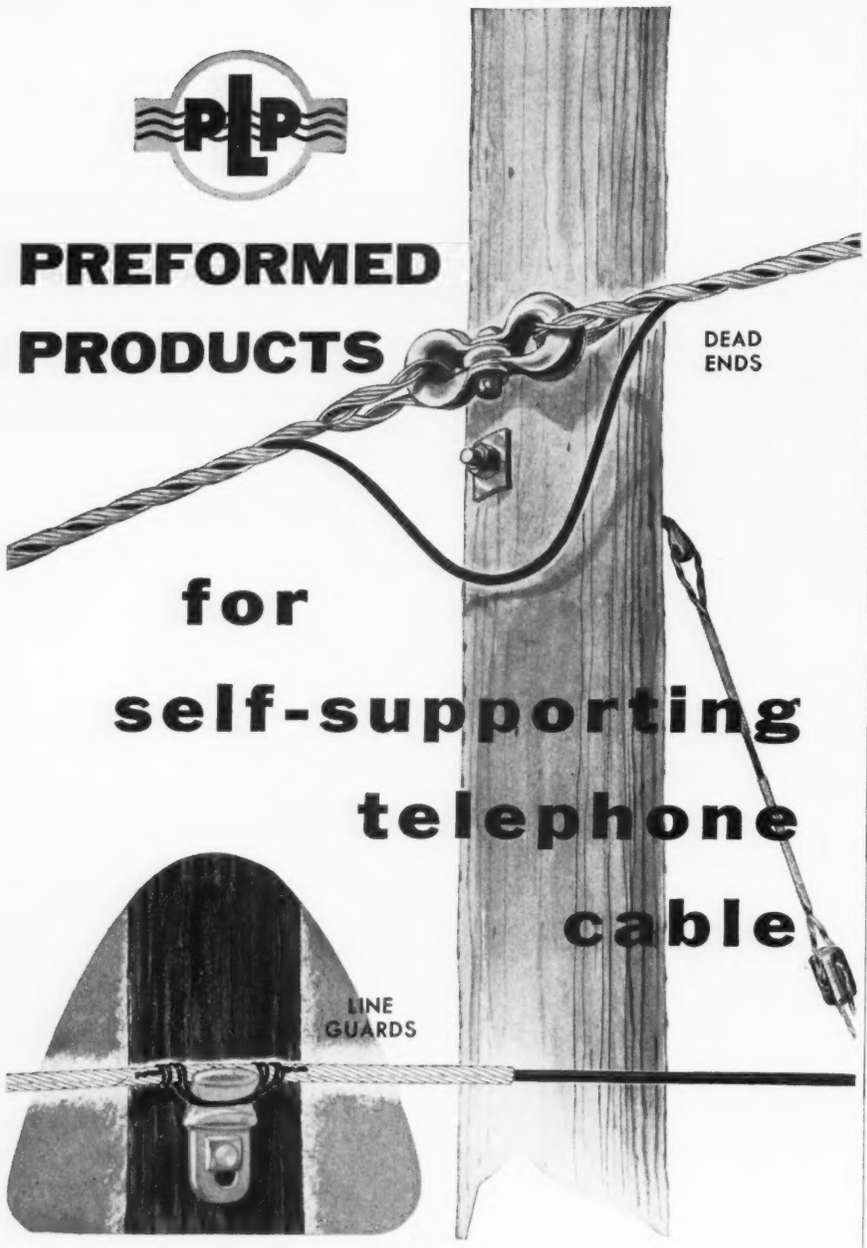
INTERNATIONAL® TRUCKS

"Standard of the Highway"



PLASTIC insulated wires within a jacket are proving to have definite electrical and economical advantages. However, this thermoplastic insulation must not be subjected to concentrated stresses. Ordinary support fittings are not suitable for this type of cable. THE ANSWER: PLP Dead-Ends and Tangent Support Line Guards used as shown above protect while firmly holding cable in an elongated grip, in which the unit pressure is small because of the large area of the gripping surface. For details of their exclusive advantages, ask your Telephone Supplier or write us for Descriptive and Technical Data.

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position will be assigned to the field engineering forces as an engineering assistant.

Howard Griffin Dies; Succumbs to Heart Ailment

HOWARD N. GRIFFIN, 59, president and general manager of the Amery Telephone Co., died at his Amery home March 6, as the result of a heart ailment.

Mr. Griffin had devoted his life to the telephone industry. The company which he headed at the time of his death was incorporated in 1902 by his father. As early as Howard Griffin was able to do so, he commenced work on the lines. He was 27 and supervising line work for the company when he decided to seek higher education. He left Amery to attend the Dunwoody Institute at Minneapolis, graduating with a degree in electrical engineering. Following graduation he served as an instructor at the institution for a year. Then to further his learning he attended night school for eight years to receive an engineering degree at the University of Minnesota.

In 1938 he became president of the Amery Telephone Co. and in 1943 assumed duties as general manager as well.

At the time of his death the organization which he headed was serving over 1,500 customers and was preparing to undertake a $643,000 REA financed dial conversion program. Mr. Griffin was particularly well known for the excellent public relations he created while heading the company. He was active in many civic organizations, serving as President of the Amery Sportsmen's Club for two terms, and President of the Polk County Sportsmen's Club. He was also on the Board of Directors of the St. Croix Valley Girl Scouts. In 1954 he was named Chairman of the REA Borrower's Committee of the Wisconsin State Telephone Association.

Survivors include his widow and 10 children. Burial was at Amery, Wisconsin.

Shaw Named To A. T. & T. Merchandising Post

JOHN M. SHAW, assistant vice president of the American Telephone & Telegraph Co. in charge of advertising, exhibits and displays, and related matters, including the Tele-

For Practical, Everyday, Down-to-Earth Service, Bank on SUTTLE . . . .

The easiest way to get your week-by-week needs of telephone supplies . . .

Suttle is primarily a service organization. Its specialty is shipping promptly and correctly any assortment of the wide variety of telephone supplies and equipment a telephone company may need from week to week.

This requires having all the various items on hand, and knowing how to assemble them, pack them properly, and get them shipped within a matter of hours.

It requires also that you be properly informed EVERY month on changes and new developments, so that you can place your orders economically and intelligently. That is why you hear monthly from Suttle with such complete information on products and services.

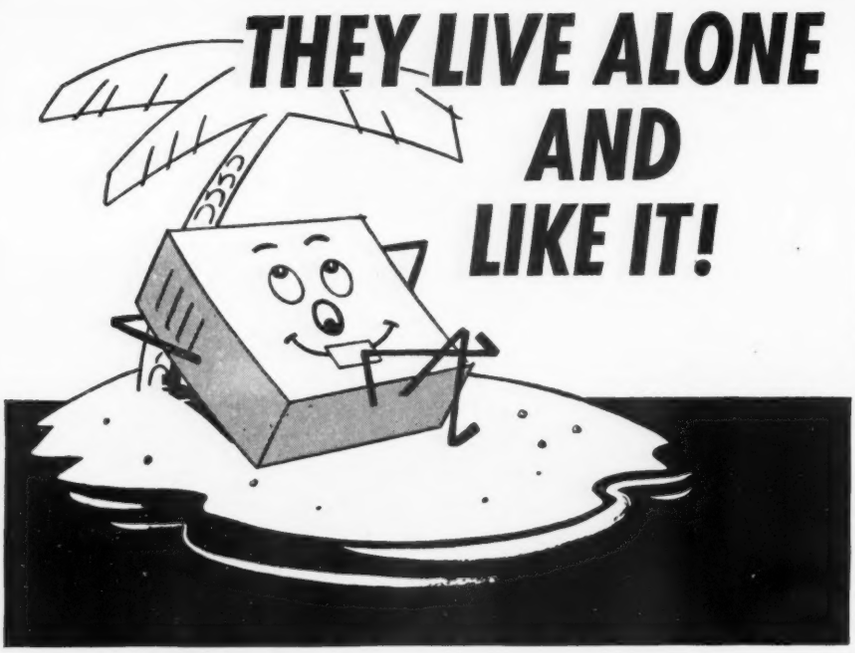
In most cases, **an order to Suttle is the easiest and quickest way** to get your routine, everyday needs in telephone supplies, equipment, and printing.

Since 1910

SERVICE - SATISFACTION

Suttle Equipment Company

LAWRENCEVILLE, ILLINOIS - - - - - TELEPHONE NOS. 782 & 783



RAYTHEON **RECTIFILTERS*** (BATTERY ELIMINATORS)

Raytheon RectiFilteRs are happier left alone. Except for a visit every twelve months or so for routine maintenance, they are content to go on providing D. C. output voltage year after year without attention.

That's an outstanding virtue in the Telephone Industry where trouble-free dependability is so vitally important.

Raytheon RectiFilteRs eliminate the need for storage batteries . . . automatically provide closely filtered and stabilized D. C. output voltage at low cost . . . release charging cable pairs for revenue producing service.

You'll like Raytheon RectiFilteRs because you never have to give them a thought — because they give you faithful service year after year at lowest cost.

RAYTHEON
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EQUIPMENT SALES DIVISION
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RAYTHEON PRODUCTS INCLUDE: RectiChargeR* battery chargers; RectiFilteR* battery eliminators; Voltage stabilizers (regulators); Transformers; Tubes and other electronic equipment.

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Specify Raytheon RectiChargeRs and RectiFilteRs for completely dependable Telephone service. Your supplier offers a complete line for all requirements. Ask him for details or write direct.

phone Hour radio broadcast, has joined AT&T's newly-created Merchandising Department as assistant vice president.

W. W. Straley, assistant vice president of the Pacific Telephone & Telegraph Co., was named to succeed Mr. Shaw in the Public Relations Department assignment.

Mr. Shaw, before joining the Bell System in 1930 in the AT&T information department, had extensive experience with several industrial and service concerns, including 11 years with a management organization in Philadelphia. He served as general information manager of the Chesapeake & Potomac Telephone Cos. and assistant vice president-public relations of the New York Telephone Co. before returning to AT&T in 1944 as assistant vice president.

His successor, Mr. Straley, joined the Bell System in 1934 as a clerk with the Northwestern Bell Telephone Co. He served in public relations and administrative assignments before going with Pacific Telephone in 1947 on the public relations staff. Since 1951, he has been an assistant vice president, heading the employee information group in the company's public relations organization.

Illinois Bell Plans $108,000,000 Construction

ILLINOIS BELL TELEPHONE Co., plans to spend $108,000,000 on construction this year, the second largest outlay in the company's history. William V. Kahler, president, said in the annual report. Last year the firm expended $99,897,000.

Net income of the firm in 1954 amounted to $35,833,867 as compared with $32,515,060 in 1953.

Operating revenues totaled $347,797,000 as against $326,846,000 in 1953.

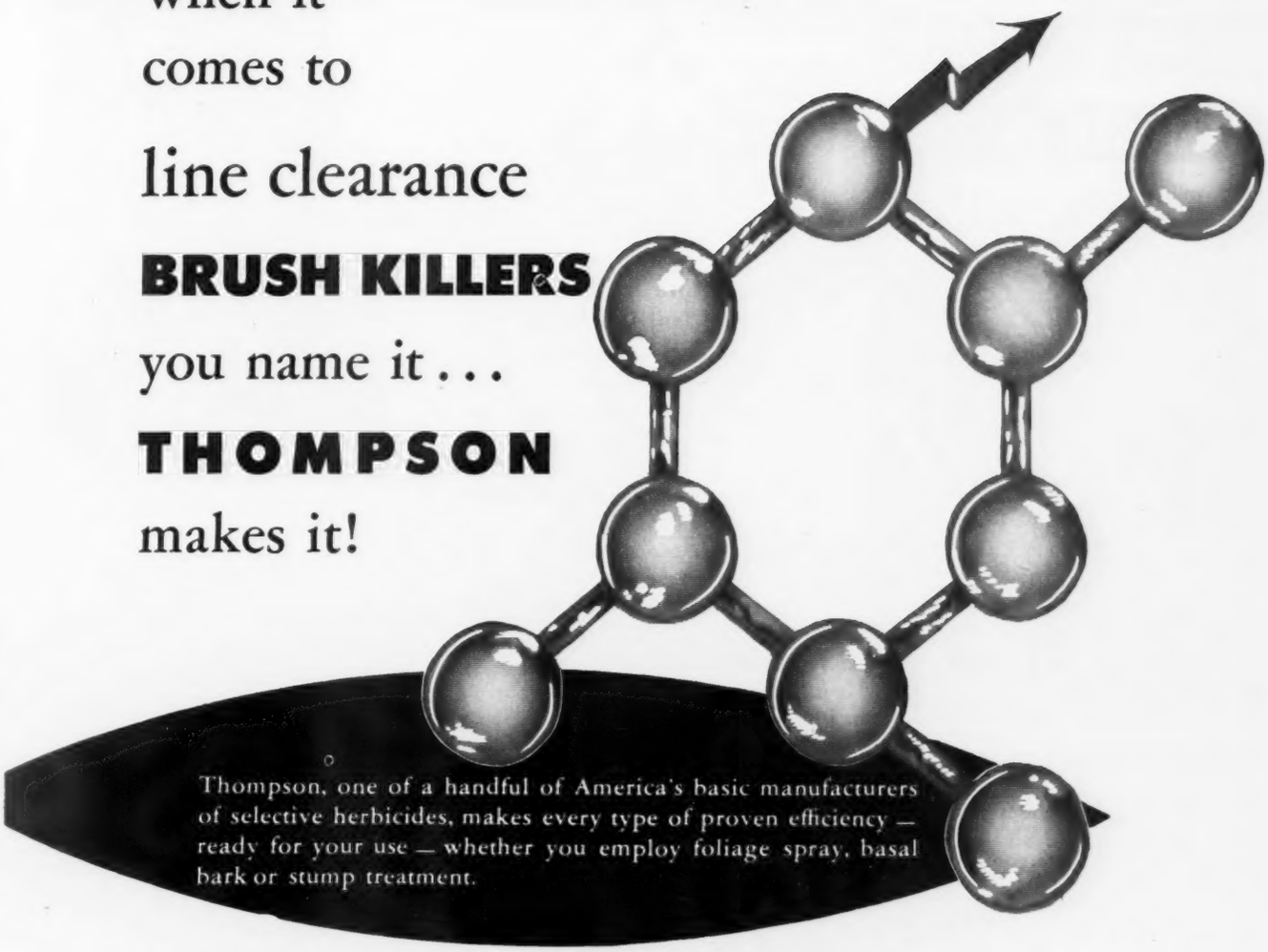
Illinois Bell telephones in service at the end of 1954 totaled, 2,971,795, a gain of 94,706 for the year.

Discussing the firm's construction requirements, Kahler said that by the end of 1954 the company had reduced the number of people waiting for individual lines or for service with fewer parties on the line, to a few thousand.

He said the company still has much more cable and equipment work ahead, however, to get on a when-and-where-wanted basis for everyone.

Kahler said while the 1954 earn-

when it comes to line clearance **BRUSH KILLERS** you name it . . . **THOMPSON** makes it!



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BROAD SPECTRUM — PENTYL ESTERS

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BROAD SPECTRUM . . . or LOW VOLATILE . . . whichever you prefer, Thompson's delivers *more kill per gallon* because every gallon is fortified with a new and exclusive surfactant perfected in the Thompson laboratories. No other "creeping agent" duplicates its performance.

MORE GALLONS PER DOLLAR . . . when you specify Thompson you get a finished product from the basic producer . . . your most economical method of buying.

NEW!

Thompson's exclusive Poison Ivy-Oak Bomb. Shoot noxious plants dead — roots and all. Stop future regrowth. Place a bomb on each truck for lines-

for most efficient kill at lowest cost*

SPECIFY . . . Thompson Chemicals **FIRST NAME IN BRUSH KILLERS**

Order through
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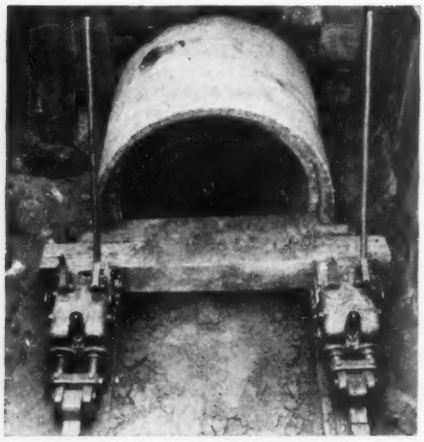
TO INSTALL PIPE...

AT LOWER COST

PUSH PIPE UNDERGROUND WITH A GREENLEE HYDRAULIC PUSHER

Here's the simple, cost-cutting way to install underground pipe. Speed your jobs with a GREENLEE Pusher. One-man operated, portable, simple to operate. No tearing up of pavement . . . eliminates extensive ditching, tunneling, backfilling, tamping, repaving. Cuts job time to a fraction. GREENLEE Hydraulic Pipe Pusher often pays for itself on first job. Two sizes — model shown above for pushing 3/4" to 4" pipe. Larger unit, below, for pipe over 4", concrete sewer pipe and large drainage ducts. Power pump (as shown above) also available for extra ease and speed of operation.



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ings rate on plant investment improved to 4.79 per cent from 4.71 per cent in the preceding year, "we are not at a satisfactory earnings level."

The company's earnings return in the period from 1946 to 1954 averaged 3.5 per cent as compared with 6.3 per cent in the period from 1921 to 1929. He said the firm's postwar returns, when compared with other lines, "has been too low for long-range financial safety."

New Brochure Describes Telephone Toll Ticketing

"THE MAGIC OF TELEPHONE TOLL TICKETING" is a new brochure prepared by General Telephone Company of Calif. It serves as a summary of SATT (customer direct dialing equipment) operations, treating the automatic progress of a call from the time a customer dials until he receives a statement of his charges.

The brochure takes the highly technical subject of SATT and explains its function in layman's language; being published with a view for making the brochure available to industries, schools, businessmen and other interested organizations and individuals.

The booklet is 8½ by 11 inches, with 16 pages. It is illustrated with photographs of the component parts of the automatic switching equipment and with each picture is an explanation of the work each part does toward the completion of a call.

General of California is one of the first companies in the United States to install this equipment. February 26, this year, the initial installations of the toll ticketing equipment were cut into service in the firm's new dial dial office buildings located in Bel Air and Pacific Palisades.

The equipment will permit approximately 9,000 customers in these two central office areas to dial an additional million and a half telephones in the Los Angeles metropolitan area.

Copies of "The Magic of Telephone Toll Ticketing" may be secured at no cost by writing to General Telephone Co. of California, 1314 7th St., Santa Monica, Calif., Att: Public Relations Department.

Tupper Named Gen. Mgr. North-West Telephone Co.

B. R. TUPPER, Vancouver engineer who has been outstanding in the development of commercial radiotelephony in B. C., has been appointed vice

B. R. TUPPER

president and general manager of the North-West Telephone Co. The company provides radiotelephone service to approximately 350 land stations and 2400 vessels plying coastal waters, as well as a number of vehicles. In addition, the company provides local exchange service to 7725 telephones in 14 communities in the province, including such centres as Prince George, Powell River, Ocean Falls, and Campbell River, Canada.

Mr. Tupper, a graduate of U.B.C., has been connected with the North-West Telephone Co. since its inception in 1929. Since 1952, he has been manager and chief engineer. For his work in the application of radio techniques to the extension of toll telephone services in Canada, Mr. Tupper, last year, was made a Fellow of the Institute of Radio Engineers. Only 13 Canadians have been so honored.

Southern N. E. Tel. Reports Revenues Up $7,000,000

DESPITE A MODERATE decline in the level of general business in the territory it serves, the Southern New England Telephone Co. experienced an increase in revenues of about $7,000,000 last year, with part of this rise attributable to the company's "stepped-up sales efforts," President Lucius S. Rowe stated in his annual report.

At the year's end, the company served 942,000 telephones, a gain of 45,000; out-of-town calls were up 4% over 1953 with an increase in the latter months of almost 10%; "real

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TELECABLE INSIDE WIRING CABLE has semi-rigid Plastite ® insulation and brown or ivory Plastite jacket. It is light in weight and water resistant. Excellent electrical characteristics. Unaffected by humidity, TELECABLE inside wiring cable is ideal for duct work. Its long life assures low maintenance cost.

TELEPRENE®
NEOPRENE JACKETED DROP WIRE

Famous WB long life drop wire has demonstrated to the Independent Telephone Industry that a BETTER wire is much more economical than a CHEAPER wire.

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The new standard original equipment cord of the Independent Telephone Industry.

The sturdy, long-lasting telephone cord that resists abrasion, perspiration, humidity, oil and grease. Specify TELECORD when you purchase telephones. On replacements use TELECORD for economy and service.

A full line of carefully engineered and manufactured wires and cables is available to meet your entire needs.

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The PREFERRED Cable of the Independent Telephone Industry

DEMAND is one measure of leadership. The preference of hundreds of independent telephone companies for TELECABLE has established the leadership of this great, new exchange area cable.

TELECABLE Exchange Area Cable for aerial and duct use has polyethylene insulation and polyethylene sheath . . . the thermoplastic sheath that provides the long life required of telephone cable. TELECABLE possesses excellent transmission qualities and extraordinary weathering properties, withstanding sunlight and extremes of atmospheric temperature. It is not subject to environmental cracking, it is light in weight, tough yet flexible.

TELECABLE Exchange Area Cable is REA approved under Specification PE-14.

TELECABLE is available for immediate delivery in No. 24, No. 22 and No. 19 A.W.G. in 11 to 202 pair.

Well Built Wires Since 1899

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WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

"Over-The-Horizon" Transmission Developed by Bell Lab's and M. I. T.

DIRECT TELEVISION and multi-channel telephone transmission through space for as much as 200 miles — without relay stations and at ultra-high frequencies — has been accomplished, Bell Telephone Laboratories and the Massachusetts Institute of Technology announced last month.

Television pictures, as well as radio and telephone conversation can be sent over-the-horizon on ultra-high frequencies, in an extension of a transmission technique recently applied to the continental defense system.

Principal virtue of over-the-horizon transmission is that longer communications bridges are possible over water and rugged terrain. In the present microwave radio relay network across the United States, relay stations are 30 miles apart.

Standard AM radio broadcasting employs waves that follow the earth's curvature. But waves used in television and telephone relays, were presumed to travel in a straight line. For many years, "line of sight" transmission between antennas placed on towers on the horizon (about 30 miles apart) was thought to be the only practical means of transmitting by radio the wide bands needed for television and multi-channel telephone service.

This was disproved after years of research at M. I. T. and Bell Telephone Laboratories. The Bell Laboratories' research stemmed from Bell's success with transcontinental microwave systems for carrying telephone conversations, radio and television programs from coast to coast and their continued interest in radio propagation. The M.I.T. interest was stimulated by work for the Government in radar and overseas broadcasting.

Scientists knew that ultra-high frequencies traveled over-the-horizon under certain conditions but believed them to be too weak and undependable for practical use.

In the course of investigating occasional interference attributed to these waves, however, the scientists discovered that many actually overshot the relay towers they were aimed at and arrived at farther points with remarkable consistency.

The next step was to provide reliable long distance transmission "over-the-horizon." M. I. T. and Bell Laboratories engineers did this by erecting larger antennas and using higher power than is employed in the conventional microwave system.

Thus, they put to use the weaker signals that drop off a straight radio beam beyond the horizon and are reflected or scattered to distant points by the atmosphere.

The effect of the new system is very much like that of a powerful searchlight, which casts a beam in a straight line. A searchlight aimed at the sky can be seen from the ground miles away, even when the searchlight is behind a hill. This is possible because some of the light is reflected to the ground by the atmosphere.

In order to make use of over-the-horizon transmission, 10-kilowatt transmitters and 60-foot-diameter antennas are being used. This is 20,000 times the power and 30 times the antenna area used in the present transcontinental microwave system. It was found necessary to employ the lower frequencies (in the U.H.F. band) to develop with available equipment sufficient power to attain a satisfactory degree of reliability.

Even after scientists learned that transmission was possible "over-the-horizon," they were not certain that this medium would support the broad band of frequencies needed for multi-channel telephone or television transmission. In the fall of 1953, they found that they could transmit 12 voice channels over-the-horizon.

Television was first successfully transmitted over-the-horizon in 1954 between the Holmdel, N. J. laboratory of the Bell Telephone Laboratories and the M. I. T. Round Hill Research Station near New Bedford, Mass.

Over-the-horizon signals are not to be confused with a similar type of transmission known as "ionospheric scatter," which is useful in long distance transmission of telegraph signals at relatively low frequencies. Unlike ionospheric signals, the over-the-horizon technique provides signals that are useful for the wide band widths required for a television picture or by many telephone channels.

(Concluded From Page 44)

progress" was made in filling orders for private lines, with the waiting list reduced by more than one-third to 34,000, and by the end of this year it is expected that the list will be practically eliminated; and the sale of new services proved highly successful during the year. Expansion and improvement of service in 1954 added up to a record $36,000,000 for construction, and the 1955 figure will be even larger.

Turning to finances, Mr. Rowe reported that "Expenses, including taxes and interest, were up $5,500,000. The result was that net earnings improved to $2.18 a share. With revenues and expenses in better relationship, the company's directors last fall increased the quarterly dividend from 45 to 50 cents per share."

The company's total operating revenue for the year was $80,529,447, with operating expenses of $55,895,207 and taxes of $13,082,847. The net income was $9,862,225.

Lycoming Company Reports Continued Expansion In 1954

THE LYCOMING Telephone Co. of Pennsylvania, cited last year by the American Institute of Management for outstanding "sound management standards," anticipates a 25% gain during 1955 in the number of telephones served, President Ralph M. Hyle stated in his annual report. The company, which began operations with 632 stations in 1945, had a total of 3987 at the end of last year, and expects to add 1000 new subscribers this year. Since 1945, plant in service has risen from $24,000 to over $1,400,000.

$6,406,200 Expansion Planned at Santa Monica

GENERAL TELEPHONE Co., of Calif., will spend $6,406,200 in the Santa Monica exchange during 1955 for additional and improved telephone service, according to E. O. Watson, manager.

The expansion and improvement program will include estimated expenditures of over $2,550,500 for dial switching equipment; $548,200 for telephone instruments, PBX switchboards and supplemental equipment; $829,600 for cable and plant extensions and replacements and $117,200 for miscellaneous equipment.

IN THE MOST controversial and significant telephone acquisition to come before the Federal Communications Commission since the early 1940's, the FCC staff has concluded that the Southwestern Bell Telephone Co. did not meet the burden of proof that its proposed acquisition of the Tomball, Tex., Telephone Co., is in the public interest. The Common Carrier Bureau staff findings suggested that Southwestern Bell's request for an antitrust exemption certificate for the transaction be denied.

It should be emphasized that the staff report is not binding either on Examiner H. Gifford Irion, who will issue an initial decision, or on the Commissioners themselves, who under normal FCC procedures will ultimately decide the case after oral argument on the initiial decision. The staff recommendations were submitted under provisions of law which put the staff in about the same position as the parties to the case, in certain kinds of matters before the Commission.

The staff filing said that no positive proposals were advanced by the Bell company to improve service at Tomball, and that as against the "speculative advantage" of Bell System service improvements outlined, "present and prospective subscribers will both be faced with substantially higher rates."

It went on, "Although this Commission does not have jurisdiction to determine the reasonableness of intrastate charges, the fact that such charges will be higher under the proposed acquisition is a factor to be considered in determining whether the acquisition will or will not be of advantage to the persons to be served."

Hearings before Mr. Irion on Southwestern Bell's proposed purchase of the Tomball company were held in early February. The US Independent Telephone Association and the Texas Telephone Association protested that the agreed-on purchase price of $200,000 is excessive, that Independents interested in bidding were foreclosed by the price, and that FCC approval of the transaction would lead to weakening of the Independent branch of the telephone industry and reducing the area for sales of equipment by Independent manufacturers.

Washington Bureau Reports

By The Editors of "Telecommunications Reports."

In its statement, the FCC bureau suggested that the denial be made without prejudice to the submission of a new application. It said that "Although Southwestern Bell states that it will comply with the requirements of the Commission's uniform system of accounts, such compliance does not bar the company from claiming the excess of purchase price over original cost as an item of rate base to support higher interstate rates. Even though the excess amount were not to enter the rate base but were charged directly against surplus, it might tend to indirectly support higher rates."

Stating that the Tomball company's "estimated" net investment is $96,000, the FCC bureau commented that "There is no showing that Bell can operate the Tomball properties with lower operating expenses than experienced by Tomball, so there would be no offset to added revenue requirements flowing from the excess purchase price. No other reasons to justify the purchase price of $200,000 as such appear in the record."

In taking the position that the proposed purchase price is one-third higher than Southwestern Bell's "somewhat doubtful estimate of cost of reproduction less observed depreciation," the bureau said that "In the case of a regulated enterprise a transfer of property in itself should never becomes the basis for the assertion of a right to impose higher charges on the consumer" or to maintain an excessive schedule.

U.S.I.T.A. and the Texas association, in addition to reiterating their view that the Independents were denied opportunity to bid for the property, and that approval would weaken the Independent branch, said that there is "far-reaching significance" in Southwestern Bell's contention that it should serve Tomball because of integration into its Houston operation. There are other Independents in the Houston area, and the situation is repeated around the country, the association said, and "It becomes transparently clear that the acceptance of this contention on a national scale would eventually result in the elimination of Independent companies from such exchange areas having profitable urban potentialities . . ."

Taking up the question of the purchase price and rates, the Independents commented that "principle is shocked" by the possibility that Tomball capitalization would be increased 106% without the addition of any property or equipment useful in serving the public.

Southwestern Bell, in its comments, said that the purchase price is supported by the valuation studies of the property, including items not covered in the Tomball company estimate.

FCC action, the Bell company said, cannot influence the actual fair value of the property, adding that municipal and state regulatory bodies customarily do not use purchase price as an index of valuation in determining rate bases. It declared that the Independents offered no evidence to support the contentions they made in the case, and that the "uncontradicted evidence" shows that two Independents offered to pay as much for the property as Southwestern Bell did.

Wiretapping

THE QUESTION of wiretapping will be aggressively pursued in the current Congress, it has become

obvious after several days of hearings before a House Judiciary subcommittee on wiretapping legislation offered by several members of the House group.

At the time of this writing, the subcommittee had heard spokesmen for the Justice Department and Department of Defense, and was planning to call FCC, telephone company, and other witnesses in its general study of the subject.

Comments of Congressmen at the hearings indicate that a good possibility is a bill which would affirmatively ban wiretapping in all but certain excepted cases of national security or heinous crimes, and that then the wiretapping would be carried on only under rigid safeguards.

Current interest in the subject in Congress, of course, stems from the sensational reports in New York City about a wiretapping "ring" and extensive tapping allegedly being carried on there and in other cities.

The Senate Interstate & Foreign Commerce Committee has jurisdiction over the subject in the upper chamber, and has asked the FCC for its views on whether additional legislation is needed to halt or reduce illegal wiretapping. It has been indicated, however, that the Senate group may hold up action for a while until it sees what develops in the House sessions.

One thing to come out of the House hearings to date in that, insofar as the Federal Bureau of Investigation and military intelligence agencies are concerned, wiretapping is substantially less extensive than the public has been led to believe. In addition, there have been rather close administrative safeguards applied.

The government agenies doing tapping generally take the position that section 605 of the Communications Act does not prohibit the act of wiretapping, but merely bars divulgence of the information obtained. They contend that so long as they use it in investigative work, without introducing wiretap evidence in court or disclosing it, that they are within the law.

Highway Relocation Costs

A VARIETY of utilities, both publicly and privately-owned, who have attempted for some time to convince the nation's lawmakers that they should be recompensed for their relocation costs connected with federal-aid highway construction, do not appear to be having much success as far as the Bureau of Public Roads and the Commerce Department are concerned.

Commerce, which was directed in last year's roads legislation to submit a report on utilities' costs by Feb. 1 of this year, still had not done so as March drew to a close and April began, and there was no telling exactly when the report would be filed.

An extension of the Feb. 1 deadline for 60 days was asked by Commerce, which then went ahead and took it although the Senate Public Works Committee never gave its approval.

Recalling that Congress had directed the Secretary of Commerce to make the report in the first place, after floor discussion that the Commissioner of Public Roads would not be impartial in view of the bureau's expressed position against paying the utilities, and that the bureau had then been asigned to do the study anyway, observers were not surprised that the Congressional deadline for filing the report was not taken too literally.

They pointed out also that, although Commerce Secretary Sinclair Weeks told a Senate hearing that the report was slow getting to Congress because the utilities had delayed in furnishing the information, actually utilities' spokesmen began pressing for action on the study as soon as Congress passed last year's roads bill, directing the survey, last April.

Services of the utilities and the National Association of Railroad & Utilities Commissioners in making the study were offered last May, and when nothing was heard after further inquiries, the utilities' group submitted a list of names of persons to assist in the study, and suggestions for the inquiry, in early July. Ultimately, former Commissioner of Public Roads Francis duPont called a meeting on the subject in late August, and questionnaires for the utilities to fill out finally were made available in mid-September.

Of course, a long delay in any final decision impends after the report's submission. Right now, Congressional committees are holding hearings on the overall highway construction program, and Eisenhower administration suggestions for a huge roads program financed outside the public debt.—THE END.

FRONT COVER

OFFICERS AND DIRECTORS of the *Texas Telephone Association* are, standing from left, *Oscar Burton*, Gulf States Telephone Co., Tyler; *W. G. Wright*, General Telephone Co. of the Southwest, San Angelo; *Morris Burton*, Gulf States Telephone Co., Tyler; *Ben Smith*, Southwestern Bell Telephone Co., Dallas; *W. S. Bain*, Mid-Texas Telephone Co., San Antonio; *Fabian Bearden*, Home Telephone & Electric Co., Baird; *D. H. Comparette Jr.*, Kerrville Telephone Co., Kerrville; *C. R. Dowd*, Hawkins Telephone Co., Hawkins; *Charles Hendrix*, Brazoria Telephone Co., Brazoria; *A. L. Robb*, Electra Telephone Co., Electra; *Guy Smelser*, Northeast Texas Telephone Co., Bogata; and seated from left, *Don Hunsaker*, General Telephone Co. of the Southwest, San Angelo; *W. G. Winters*, Hull Telephone Co., Houston; *D. G. Gardner Jr.*, Nocona Telephone Co., Nocona; and *J. B. Haley*, executive secretary, Austin.

Other officers and directors not pictured are *J. T. Chambers*, Tenaha Telephone Exchange, Tenaha; *Marion A. Clay*, Lufkin Telephone Exchange, Lufkin; *E. H. Danner*, Texas Telephone Co., Sherman; *George M. Johnson*, Coleman County Telephone Co-op., Inc., Santa Anna; *T. A. Singer*, West Texas Telephone Co., Dimmitt; *Ralph Sparks*, Pecos & N. W. Telephone Co., Pecos; *Lucian W. Spencer*, North Plains Telephone Co., Dumas; *D. T. Strickland*, Southwestern States Telephone Co., Brownwood.

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302 pressure-creosoted poles installed in 1928 ... *only one replacement* due to pole failure

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See "THE UNITED STATES STEEL HOUR"—Televised alternate weeks—Consult your local newspaper for time and station.

1929 dating nails on this pole are evidence of the long, economical life of pressure-creosoted poles.

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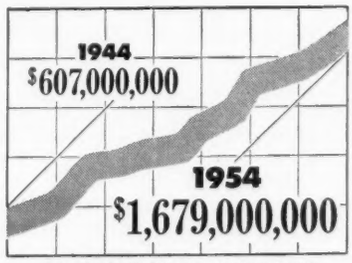

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EDITORIAL

Telephone Engineer

The "New Look" In The Telephone Industry

IN THE OPENING paragraph of his 1954 annual report to the stockholders of American Telephone And Telegraph Company, President *Cleo F. Craig* says:

"Nineteen Fifty-four was a time of constructive change in our business."

This statement also applies, as well, to many Independent telephone companies, particularly the larger companies and groups. And, as time goes on, this proposition of what Mr. Craig calls "constructive change" will influence the actions of many more Independent companies, including small companies.

It is not possible to comment on all the angles of this situation in the space available here, but it can be said that there are two important aspects of it.

The first is that a very large segment of the telephone industry is no longer waiting for business to come to it. Instead, it is going out after that business.

The second is that the industry is putting forward, to get that new business, what is practically an entire new line of goods to sell to the customer.

Only those who are in or who are very familiar with the telephone business will understand how radical a departure from the historic development of the business is represented by these two undertakings — especially when they are in combination.

For many years the growth of the telephone industry in this country was the result, principally, of the demands by the public for more telephone service. Excepting for a few relatively short periods of time — the worst being the period of the Great Depression — that public demand was constant and was also of such size that it kept the industry growing, year by year.

From time to time a telephone company with available facilities would put on a "sales campaign" — but most of the time the real job of the company was to keep up with the public demand. In consequence, the industry was sometimes called "the business without a sales department."

The fact is, as to sales campaigns, that a telephone company had nothing much to sell in the way of new services, and little in the way of new equipment. There was some choice of the kind of local service, such as between direct line and party line. There was some choice, at times, as to the type of subscribers' equipment. But that was about all, so far as the general public was concerned.

Now all that has changed.

If you want to consider how much it has changed, at least insofar as the Bell System is concerned, observe the fact that the big American Telephone And Telegraph Company has sent out, with its 1954 annual report to its more than 1,300,000 stockholders, a catalog of new telephone services now available from Bell System companies, or new types of equipment available.

This is the "new look" applied to the telephone business.

It is not merely a change in policy; it is a new philosophy with respect to supplying telephone service. That it will have far-reaching and beneficial effects upon the industry and its relations with the public, seems to us to be certain.

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NEW CHEMICAL SPRAYS EASE RIGHT-OF-WAY CLEARANCE

By STANLEY A. HAVILAND*

"Let us spray" — with chemicals — may reduce brush on rights-of-way to a point where it can be controlled during routine inspections of the lines.

"VOICE PATHS" is a figure of speech familiar to most telephone people. It is one way of referring to the telephone cable and open-wire lines which span the countryside. But few of us realize that these paths remain open to speeding voices only because actual physical paths are maintained for them. These physical paths are known as rights-of-way, and are recognized most commonly as the cleared swath of a cross-country pole-line route occasionally seen striking off over a distant hillside. These are the main telephone routes extending over many miles to connect the country's major centers of population. Of even greater total mileage are the roadside rights-of-way tying together the various local exchanges.

Why is it necessary to keep these paths clear of brush? The answer is not far to seek. Trees and shrubs capable of growing to the height of open wire and cable on poles can cause trouble through contact and by falling limbs. And if there is trouble, lower-growing brush — wild grapevines, blackberry and raspberry canes, for example — block the path of the repair crews. Poison ivy and other noxious plants lie in wait for the unwary. Boulders, gullies, chuckholes and other booby traps are screened by dense brush and make progress along the right-of-way a risky business for man or truck. The problem is common to all the companies of the Bell System. Were nothing done to keep the "way" clear, the conditions described would exist on some 350,000 miles of pole line throughout the country.

Mechanization of The Job

OF COURSE, something has always been done. Ever since the first line was built beyond city limits, crews of workmen have at intervals been going over the routes with axes, brush-hooks, and saws, cutting the brush and piling and burning it.

In recent years, the people responsible for right-of-way maintenance have experimented with mechanization of the job. Bulldozers and steel-tooth scarifiers have been seen pushing over scrub growth, yanking it out by the roots and shoving it over to the side of the right-of-way. In some cases, this was followed by disc harrowing to chop up and cover the remaining litter. There is even a tank-like device which rolls up and down the line and literally beats the brush to pieces by means of a series of slashing flails, in a manner similar

*Mr. Haviland is with the Outside plant Section, O. & E. Department, A. T. & T. Co.

to that used by the British to explode enemy land mines in World War II.

But even the best of these methods has its defects. There was a time when idle farm labor could be used during the off-season for low-cost manual clearing of right-of-way. With the increasing use of power tools on farms, this labor pool has dried up and labor costs have mounted as a result. The methods employing heavy power equipment, while spectacular and capable of doing a good initial job of clearance churn up the soil. This is undesirable, since one objective of good maintenance practice is to develop and preserve a ground cover of grasses, low growing shrubs, and other vegetation as a means of preventing soil erosion. Elsewhere, these methods had the effect of creating a finely mulched seed bed, ideal for encouraging new brush to start.

Cutting brush produces no permanent effect in most cases. The plants immediately try to recover the balance between the portion below ground and that above. Cut a single stem, a red maple sapling, for example. Next year you will have maybe three smaller ones. Cut these and the following season you find six or seven more starting. Each year the size diminishes but the number increases. In the end you face a bushy obstacle more formidable to passage along the right-of-way than the original tree. The same is true of many species.

Before one-spray application along Tennessee right-of-way.

Chemical Weed Killers

BRUSH THAT thrives under conditions along the right-of-way is tough. Some species of growth found there will continue to grow if even a small bit of live root is left in the ground. While we do not as yet have a sure method for handling these more persistent ones, the appearance on the market some years ago of chemical weed killers has pointed to a way of controlling most of the types of growth found along our lines. These chemicals had the ability to kill not only the growth above ground but also, with most plants, to kill the roots.

The exact manner in which these materials cause the death of a plant is not yet known. Although studies have been under way for some time, the problem remains a complex one, similar to others in nature which are still unsolved after many years of research. For example, chemists have worked intensively for over 100 years trying to find out how a plant makes sugar, but only now are they beginning to understand the process.

Tests have shown, however, that the brush-killing chemicals do enter the plants and get into the channels through which fluids move up and down within them. Once within the plant, it appears that certain of the chemicals may have some upsetting action on the plant's food processes. Chemical changes observed in the elements which make up the plant tissues and the occasional appearance of abnormal growth effects seem to point in this direction.

The development of the chemicals was by stages, a process which is still going on, by the way.

After spraying along Tennessee right-of-way.

Among the first found was a chemical for killing poison ivy. This turned out to be a general killer, and would kill almost any plant it was sprayed on. Another chemical was useful on lawns and in agriculture to kill broad-leaf weeds without harming grasses or grain crops. A close relative of the latter was discovered which would kill various types of briers.

When used for their intended purpose, these chemicals were applied in comparatively dilute form. Later it was observed that, when administered in stronger doses, they had the power to kill the woodier forms of plant life — trees, shrubs, vines and the like — still without having a permanently harmful effect on the growth of grasses.

In the use of these chemicals on telephone rights-of-way seemed to lie the answer to the problem of dealing with the brush nuisance economically yet without any of the shortcomings common to previous methods. If we could spray the right-of-way at a cost comparable with cutting, and each time we sprayed we killed something, we might look forward to the time when we would have no more clearance problem. The right-of-way would be all grass and would maintain itself. We know now that this is practically an impossibility — there will be re-invasion of brush from wind-blown seeds and other sources. But even if we never reached this ideal situation, the prospect was sufficiently encouraging to warrant a start.

A further incentive to outright elimination of scrubby growth by chemicals, particularly on roadside right-of-way, is provided by the promise of vastly improved scenic and utility values in rural areas. Roadside brush is condemned by farm extension services as causing unsightly fence rows, ditch banks, and roadsides, and as an accident hazard through its obstruction of vision at farm lanes and crossroads.

Clear roadside areas also mean more productive acres for the farmer by permitting him to plant closer to the lines. Highway forestry supervisors agree that the safety, convenience, and pleasure of motorists are benefited by brush-free roadsides, and they encourage the judicious use of chemicals for this purpose. Thus, in improving our own housekeeping methods, we are also assisting farmers, highway commisions, and park authorities in their work.

It must be admitted that trials proved the first chemicals, as used in 1946, almost worthless as far as their effectiveness in killing off brush was concerned. Early users, overrating the potency of the chemicals and underrating the importance of thorough application, at first applied the materials sparingly and in dilute form to the leaves of the plants only. The green of the foliage would begin to fade as a result of the chemical activity. Eventually the leaves would drop off, and a successful outcome seemed to be promised. But a revisit the following spring would show nearly everything coming along flourishingly. Only the less populous susceptible species had been killed, and the best that could be found in the tougher dominant varieties was that the tips of the branches had been killed back a few inches.

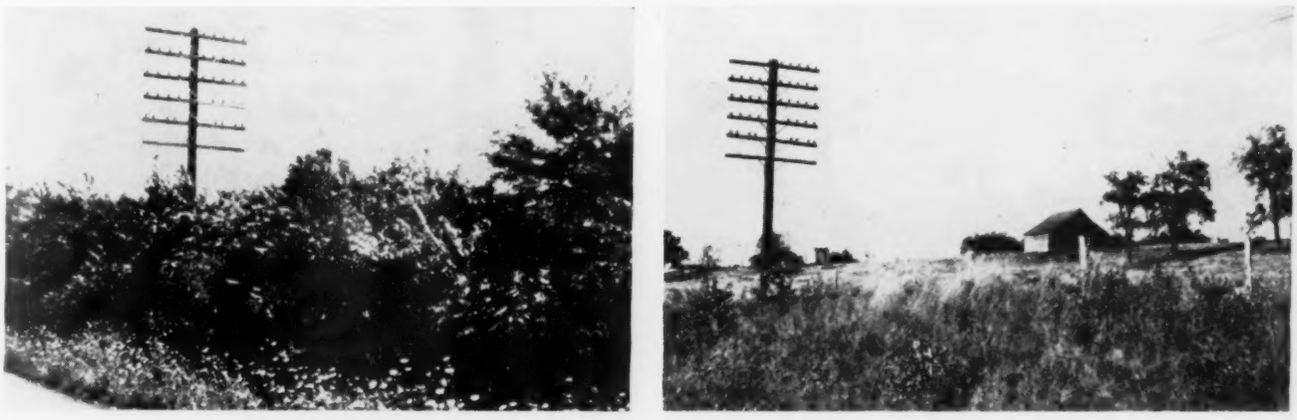
What was wrong? If treatment were continued in this fashion, it might be possible eventually to worry the plants to death, but this would be too expensive. That some plants were killed outright was proof that the chemicals were not hopeless. The odd thing was that there were instances where only a tip kill was produced on one specimen, whereas alongside was an identical plant dead to the ground line.

There followed a scramble among manufacturers, researchers, and users to find the solution. First, the strength of the chemicals as supplied was stepped up and stronger spray solutions were applied. This had the disastrous effect of stripping the leaves off the plants before sufficient chemical could enter their systems to produce results. As soon as the plants could grow new leaves, they were as good as ever.

Then it was discovered that certain chemicals affected one group of plants more than others, and so combinations of chemicals were put together so that they might complement each other with their special properties. This helped; a wider variety of plants was being seriously affected by the foliage spray, but the results were still erratic.

Nature cannot be hurried. Sometimes the full effects of spraying are not apparent until the plants have passed through the first or even the second growing season following the treatment. So it takes that much time to find out that everything is not as it should be before something else can be tried. It is no wonder, then, that, with the passage of time being measured in seasons and money being spent with no real results to show for it, serious doubts began to arise about this new method of clearing right-of-way.

But gradually the outlook began to improve. Reports began coming in of good rates of kill with chemical applied in water as foliage treatments, much in the manner of earlier



Reduction of brush along the Burlington-Kansas City Route through spraying.

sprays. Evidence was also at hand to show that resistant plants could be killed at any time of the year by applying stronger solutions of the chemicals in oil to just the stems or trunks at the ground line and to any portion of the roots appearing above ground. From this came the idea, with a given strength of spray solution, successful treatment depended almost entirely on the thoroughness of applying the spray.

Investigation of reports of successful foliage applications during the growing season showed that, contrary to the original idea that plants could be killed simply by spraying the leaves, the only way to get more than a top kill was to spray the whole plant. This explained those baffling cases of identical plants standing side by side, one dead, the other hardly touched. The dead one had got "the works." Its leaves, twigs, stems and the parent stump had been doused thoroughly. The live one had got only a modest wave of the spray nozzle.

Discovery of what was required to do a generally effective foliage spraying job helped to revive the confidence of the supporters of chemical control of brush, but it did not provide the whole answer. There is hardly a stand of brush anywhere that does not conain some stubborn species. Willows, birches, black gum, sycamore and alder, for example, are relatively easy to control. But they are rarely found on right-of-way except in the company of one or more of such species as red maple, ash, basswood, hickory and some oaks. These are among the difficult types, particularly if sprouting from old stumps left from the original clearing of the right-of-way.

The Two-Stage Treatment

FROM THIS situation gradually evolved the two-stage treatment now coming into use. The density of brush on a right-of-way that has been cut over many times makes it impracticable to expect that every single sprout will be sprayed thoroughly the first time over. Taller growing brush shields the lower growth. To hit every stem would mean that the men doing the spraying would have to force the tall brush aside to reach the plants below it. Consequently, the first spray is looked upon simply as an opening-up operation in which the objective is to clear out the easier-to-kill species and possibly kill to the ground line or at least retard the growth of the others. With the area partially cleared, it is then possible in a follow-up treatment some time later on to give individual attention to the survivors.

A spray rig in operation in Florida.

The first spray is usually a general over-all spray with the chemical applied in water. The spray solution is carried in large tanks mounted on trucks capable of traveling over rough right-of-way. Pumps force the solution through hoses to men on the ground who direct the spray onto the brush by means of nozzles similar to those used in spraying orchards. An effort is made to wet everything having tall growing habits and all lower brush that would impede progress on foot along the route. Low-growing plants that do not form an impassable tangle are spared wherever possible for their value in preventing the re-establishment of unwanted types.

The spray will keep these Pennsylvania osage orange stumps from sprouting anew.

A successful treatment of this sort will remove up to 65 percent of the unwanted brush from the right-of-way. Since the chemicals seem to persist in the plant for a considerable time, patience must be exercised in assaying the initial results. Scrub oak sprayed in June has been observed to put on leaves the following spring, only to have them turn brown and the plant apparently die later that summer. A second inspection the next spring would be necessary before deciding whether further treatment was required.

With good results on the first time over, the follow-up treatment, designed to get the plants that either were missed or had survived the first spray, can be directed at the individual clumps. For this work the chemical is applied in higher strength at the bases of the plants. It can be done at any time of the year, since in this treatment the chemical enters the plant through the bark and roots, and leaves are not necessary for the purpose. Because of the smaller volume of spray solution required for a given area, this work can be done using knapsack tanks carried by the men, although truck-mounted equipment is also used.

Where the brush growth is beyond reasonable spraying height, or where spraying standing brush would leave an unsightly strip along the roadside, the practice of cutting the brush and spraying the remaining stumps and stubble is followed. This treatment is similar to the basal spray and is effective in preventing the otherwise almost certain sprouting from the portion left in the ground. It is especially suited for handling spiny growth like the osage orange or mock orange which was commonly planted

years ago as fencing in rural areas. If killed while standing, this tree continues to present a thorny problem for years to come.

Some right-of-way is so inaccessible to vehicles or afoot that the chore of moving the chemicals and equipment to the spraying site becomes a task in itself. Costs may double or triple for the usual methods of treatment. In these situations some success has been had by spraying by helicopter. The lifting ability of such craft is limited, so that only comparatively small volumes of high-strength chemical are handled on each flight. This method is useful in keeping down the height of the brush, but a high rate of kill except on the most susceptible species does not appear likely. Because of the danger of drift of a spray stream applied at a height above the line, its use is confined to locations where the spray would not do serious damage if it should happen to be blown by the wind beyond the limits of the right-of-way.

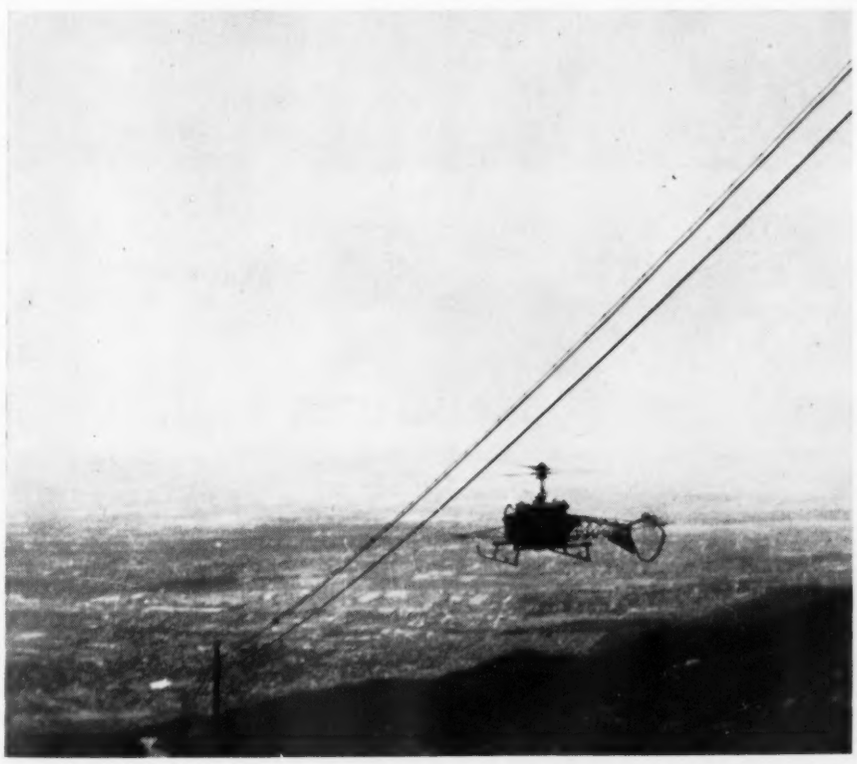
Clearance Costs Show Downward Trend

THE SPRAYING is being done mostly under contract by line service companies experienced in right-of-way clearance work and costs have shown a downward trend over the last three or four years. It is likely that this year will be the last year to see cutting done on any telephone right-of-way suitable for spraying. Even this will be done only because it is necessary in preparing the area for chemical treatment.

Considering that the annual bill for right-of-way clearance for the Bell System runs into millions of dollars, even a modest reduction in the total is worth going after. At present, a conservative estimate of future maintenance expense would place the annual saving at about fifty percent. Manufacturers of the chemicals are constantly at work improving their products and developing new ones. Field experience is showing the way to better methods of application. It is not beyond the realm of possibility that within the next few years, brush on our rights-of-way will be reduced to a point where it can be controlled simply as a part of the routine inspection of the lines. — *Reprinted from "The Bell Telephone Magazine."*

"QUOTE"

"Russian scientist estimates there are 40,000 centenarians in the soviet union, and they deserve our sympathy. That's the place where the first 100 years really must be the hardest."
—Chicago Tribune.



Experimental spraying by heliocopter on mountainous right-of-way in Calif.

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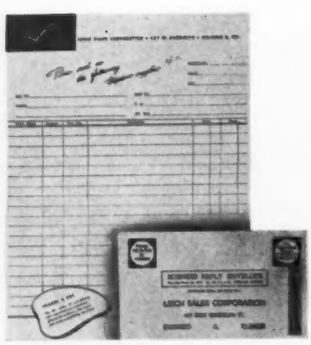

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GENERAL TELEPHONE SYSTEM

The New Approach to SUPERVISION

By A. Q. SARTAIN

Professor of Psychology and Personnel Administration, Southern Methodist University

IS EFFECTIVE supervision in 1955 different from effective supervision in 1905? Is the 1955 model American worker different from the 1905 model?

ONE RATHER recent development in business and industry has been an increase in the attention paid to human relations problems. Before World War II the human factor in productive work was pretty largely taken for granted. We seemed to feel that if we furnished an individual with good materials, good machines, good methods, good working conditions, and perhaps incentive wages we had done all that management could do, or could be expected to do, to motivate him to work effectively.

We now realize that this view is a limited and inadequate approach to the problem. People want the things we have just mentioned (though it is obvious that incentive pay is evaluated differently by different people). But they can have all these things and still be unhappy and comparatively unproductive. As a supervisor or an executive of 1955 how do you deal successfully with the human factor in production?

Before we attempt to answer that question, let's raise another. Are there things that have happened in the United States in the last generation or two, things that have an influence on effective leadership? In other words, is effective supervision in 1955 different from effective supervision in 1905? Is the 1955 model of American worker different from the 1905 model?

Expanding Economy: — Certainly one way in which things have changed is in the productivity of American industry. It is well known, for example, that productivity in this country has definitely increased in the past and continues to increase each year. The rate of this increase is 2% per year or better.

Perhaps this has influenced supervisor-employe relationships most directly in the increasing standard of living. *Fortune* for August, 1953, is the authority for the statement that while in 1929 29% of the family units in America had incomes of between $3,000 and $10,000 per year (in terms of 1953 dollars and allowing for taxes), by 1953 that figure had risen to 58%. Not only does the worker get many more dollars in 1955 than he did in 1905, but his wages will buy much more in the way of goods and services. This certainly makes a difference in how he feels and how he should be supervised.

Downgrading of Many Jobs: — Another development which I think is significant is the increase in the number of jobs which demand close attention or much repetition on the part of the worker but which call for little exercise of judgment or originality. We have tended in recent years to build the skill into the machine (or to put it in the engineering, production planning, and like departments) and hence to demand less and less, especially in the way of decision making, from the operator.

Perhaps the best example of what I have in mind is the difference between the oldtime craftsman and today's assembler or other mass-production worker.

The craftsman was called upon to make choices, to exercise judgment, and to do planning. As you well know, in many situations today's worker has only a minimum of op-

portunities along this line. And I think that affects how he feels, the kind of person he is, and how you lead him successfully.

Growing Sense of Independence: — One of the developments of the recent past has been a growing sense of independence and individual worth on the part of the common man in the United States. It has been said that this is the age of the common man, and I think there is a great deal of truth in that statement.

Increasing Education and Communication: — One of the biggest contributors to this sense of dignity and worth on the part of the common man is the American ideal of education for all. It is little short of phenomenal how much progress we have made toward that goal. For example, in World War I the average man in the service had completed six grades in school. In World War II that figure had become eight grades. In 1900 less than one person in 10 who entered the fifth grade stayed on to graduate from high school. Now that proportion is about one in two! In 1900 only one young person in every 25 of college age was in college. In 1952 this figure had become one in six! It is hardly necessary to add that educated workers expect and even demand a different sort of treatment from that given to uneducated workers.

Legislation and Court Decisions: — Certainly legislation of the past 20 years and decisions by administrative bodies and the courts have greatly increased this feeling of independence on the part of the common man. It makes little difference what you choose here: legislation relating to collective bargaining or social security or wages and hours; or Supreme Court decisions upholding these legislative acts or others giving rights to minority groups — these things have had profound effect on the spirit of the times.

It is, of course important to note that while these things have affected the spirit of the times they are in part the result of that spirit. However much we may approve or disapprove of these developments we have to accept many of them as coming from strong feelings on the part of the average American about the dignity and the rights of Americans.

Women at Work: — Closely related to the point we have just made is the fact of the increasing numbers of women who are gainfully employed. At present this number is in excess of 19,000,000 or about 30% of our entire work force. Interestingly enough, more than half these women are married, and over 40% are 35 years of age or older!

"... and I, sir, want a guaranteed annual carrot!"

Perhaps this is most important for our present purposes mainly because it emphasizes the early points about the rights of all people — including women. Women are demanding equal treatment — and fair and respectful treatment — from the supervisors of 1955 and are nearer to receiving these than women workers have ever been before. Certainly this has influence on all worker-supervisor relationships in 1955.

What Does It Mean?

MY REMAINING question is, what does all this mean to the supervisor of 1955? On the basis of what we have discussed, and considering other developments as well, how should you supervise today?

How Good an Example Do You Set? — We Americans have a lot of faith in words when someone does something he shouldn't we think we should tell him about it. When someone needs to acquire a skill he does not now have we emphasize proper instruction. Words seem to us to have — or come close to having — a magic power.

I would not say anything to detract from the value of skillful conversation or speech-making but often the real question for a supervisor — is, what sort of an example do I set? What about my attitudes, my real devotion to my job and the Company? What about my own ethical standards? What about my concern for my fellow human beings, those who work here and those who do not? What kind of an organization would this one be if every person in it were just like me? That question certainly causes us to stop and think at times.

What about Your Emotional Balance and Control? — The rest of what I want to say may be just an elaboration of the previous point, but several questions are still worth asking. Certainly, one of them relates to this matter of emotional balance and control.

Perhaps you've known supervisors, and even executives, who supervised primarily in terms of their feelings. Perhaps they are subject to great swings in emotion, happy and agreeable one day and very irritable and difficult the next. It is interesting how your associates adjust themselves to your changing moods if you are this sort of a person. But let me quickly add that, while they may adjust to your changing moods, they don't admire you for them. The supervisor of 1955 just can't afford to supervise this way.

This point applies with great force to matters of discipline, for so frequently we discipline, not in accordance with what the offender has done but according to how he has made us feel. It also applies to promotion where, no matter how much we may think that we personally are exempt, we all have a tendency to favor our friends and discriminate against those whom we do not like. I need not comment on the disastrous effects of this sort of action.

Are You Willing to Do Anything You Ask Of Them? — One of the temptations of a supervisor or an executive, especially of a person who has just been made a supervisor or an executive, is to throw his weight around, issue orders, and in general, tell other people what to do. Now there is no question but that someone has to call the signals, and also no question but that there are things that it is not advisable for the boss to do. But my point is simply this: the people who are your subordinates are still people. Furthermore they are your equal in the eyes of the law and in

the sight of God and man, or at least they have the right to be. They may not be your equals in authority or intelligence or wisdom, but they are creatures of value and worth, and you must treat them accordingly. They are your *associates*, your partners in the enterprise, and the chances are that most of you will sink or swim together.

I have been trying to say, not that you should do everything you ask them to do but that you should be willing to do so. Nobody in the United States is too good to do anything in the United States that needs to be done.

Are You a Good Listener? — Earlier we mentioned the dependence of most Americans on telling people things. Somehow, as we said, there is a feeling that the really good supervisor must be good with words, good at expressing himself. Of course this is an important skill. But there is another skill almost, if not entirely, as important as skill in telling, and that is skill in listening. By listening you can frequently learn a lot. But what may be more important, by listening you often help the other fellow convince himself or help him get some emotional release from a troublesome problem. It is probably safe to say that the sort of communication that changes attitudes and values and feelings seldom occurs unless the one to whom it is directed has a real opportunity to talk.

And so the question, How good are you at listening? Do you really *want* to listen? Do you really want to hear what they want to say even if it involves criticism of you? Can you really take it? These are questions of great importance to the supervisor of 1955.

Are You Keeping Them "In on Things?" — The more a person thinks of himself as free and independent, the more he is going to insist on knowing what is going on and why it is going on. Certainly the 1955 model of American is no exception to this statement. He insists on knowing what is happening and why and frequently goes to great length to get the answer to both questions.

This puts a heavy responsibility on a supervisor. It means that he must be very careful not to conclude that people know more about what is happening than they do or that they know as much as they want to know — or are entitled to know.

It also means a great deal of consultation with his subordinates individually. He must inform them, it is true. But he must also find what is on their minds and give them a chance to express their opinions.

It also means a lot of meetings, for say what you will, things will come out — and certain kinds of planning will be done — only in a group. Obviously, a supervisor can spend too much time in consulting and also have too many — and the wrong kind of — group meetings. I am convinced, however, that most of us do too little, and not too much, of both of these.

What I am really trying to say comes down to this: You must keep them informed about the things they want to know about and have the right to know about. And also you must *earnestly* and *sincerely* seek their ideas and suggestions. When people are kept "in the know" and their ideas earnestly sought and fairly and sincerely considered they usually feel that they are "in on things."

Are You Appealing to Their Need to be Needed? — One need of people that we easily overlook is the need to be needed or the need for a feeling that what one is doing has significance or really makes a difference. Practically everyone has this need but the tragedy is that many, many people in the work situation today do not have the *feeling* of being needed, and hence do not satisfy this need.

And so I should like to ask two questions: First, *do you as a supervisor spend a considerable portion of your time in finding or devising ways in which your subordinates can satisfy the need to be needed?* Incidentally if you have not been spending time on this and putting forth a lot of effort the chances are you are not doing a very good job along this line.

And second, — *have you spent time and put forth effort to find ways in which to motivate people to take advantage of these opportunities when presented?* This too requires real effort and planning.

If you have done these two things well, the chances are that you've been a good supervisor. If you have not done them well, the chances are that there is room for real improvement in your supervisory techniques.

There is certainly no royal road to effective supervision in 1955. Successful leadership of others may come more easily to some people than to others, but the chances are that the good leader of today is a good leader primarily because he works hard at the job of supervising, because he studies and plans and does his best to know his people, both individually and as a group. And he certainly makes every effort to keep his leadership techniques up to date, to adapt them to the 1955 model of American worker. — *Mr. Sartain presented this address at the* 1955 *Convention of The Texas Telephone Association.*

"QUOTES"

"National Debt"

"The national debt is owed, in part, by every American family. It amounts to a first lien on all our national assets.

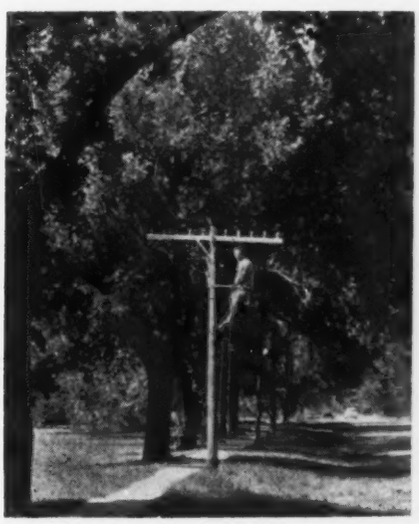
The magnitude of that debt is graphically pictured by the Tax Foundation. Suppose we took the total annual paychecks of every one of the 55,000,000 people who work in our factories, businesses and farms. Suppose we added to that the pay of the 7,000,000 civilians on government payrolls and the 3,000,000 people in the armed forces. Suppose we then added such extras as all the social security payments made by employers. That would total $209,000,000,000 — which is some $70,000,000,000 less than the national debt!" — *Industrial News Review.*

"Collection Agency"

"ON A NATIONWIDE basis the states pay an average of $6.99 into the Federal treasury for each dollar returned under direct grants and 'matching fund' projects. These figures would indicate the the Federal government in its role as a collection and distribution agency is depriving the state of billions of dollars per year which might be administered more effectively at home." — *Bedford (Ind.) Daily Times-Mail.*

"Employes have ample opportunity to observe and report potential trouble."

Exchange Maintenance



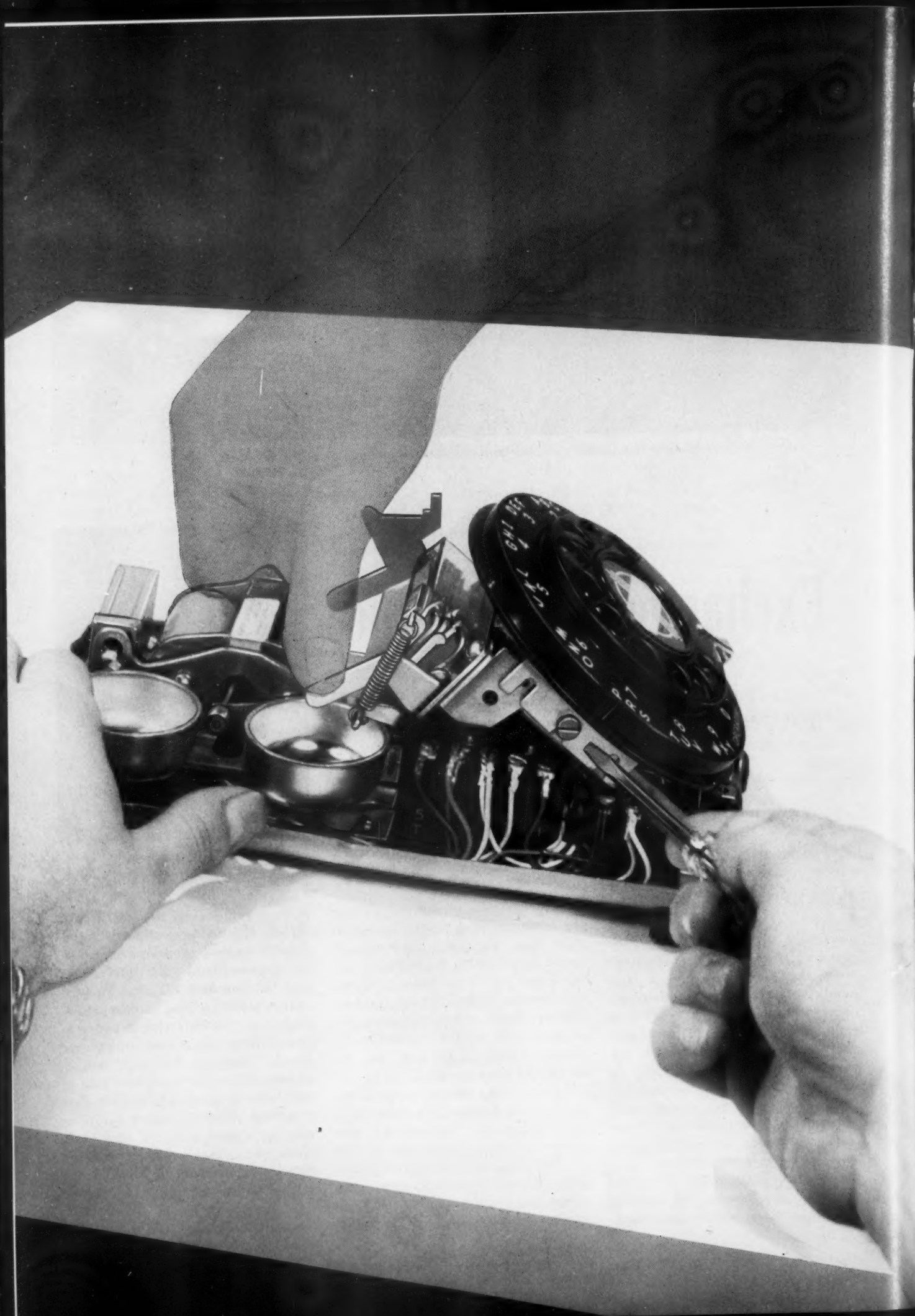
"NEGLECT OF outside plant maintenance can easily result in a large number of service interruptions and consequent chaos."

By JOHN S. REED

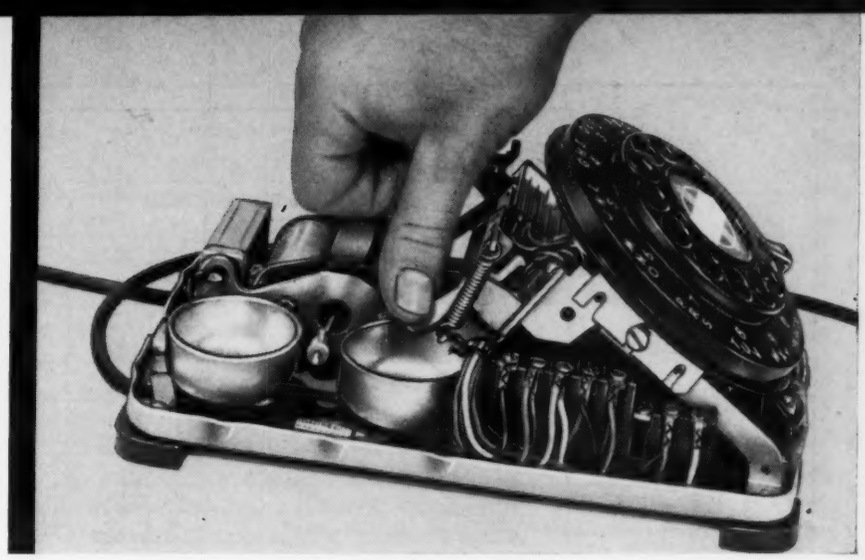
PREVENTIVE maintenance is accepted as an absolute necessity in practically all large telephone exchanges where neglect of outside plant can easily result in a large number of service interruptions and consequent chaos. Such exchanges embrace areas of high population density where practically all telephone circuits are in cable and the outside plant is heavily concentrated. Because of the heavy concentration of plant and a large number of telephone customers, a relatively large working force is required to handle the routine work of installing and removing telephones and locating trouble in lines and station equipment. The men spread out all over the exchange area in the course of their daily work and thus there is ample opportunity for them to observe and report instances of potential trouble. These cases are handled promptly through systematic assignment to combinationmen or exchange crews, depending on the amount of work involved.

In exchanges located in predominately rural districts, the situation is quite different. Because the telephone customers are scattered over a wide area, they are served principally by open-wire multi-party lines which are subject to damage from various causes and deterioration through exposure to weather. Where cable is justified in small towns, cable plant is limited to town boundaries and approaches to town limits (farm and toll entrance cable). The exchange working force, in many cases, may consist of only one or two men who have to drive many miles over country roads on their daily assignments and yet may cover only part of the exchange area. The result is that telephone plant in remote locations may be visited only on rare occasions. It is thus possible for plant deterioration in many locations to remain undetected until the exchange

Please Turn To Page 68



Remove housing, press "Installer's Hooklock" and calls come in as usual. No lost toll calls. Replace housing and hookswitch restores automatically.



"Installer's Hooklock" on Type 80 Monophone provides easy way to keep hookswitch down during installation and maintenance. It's a real time- and temper-saver!

Gives your maintenance man a *"3rd hand"!*

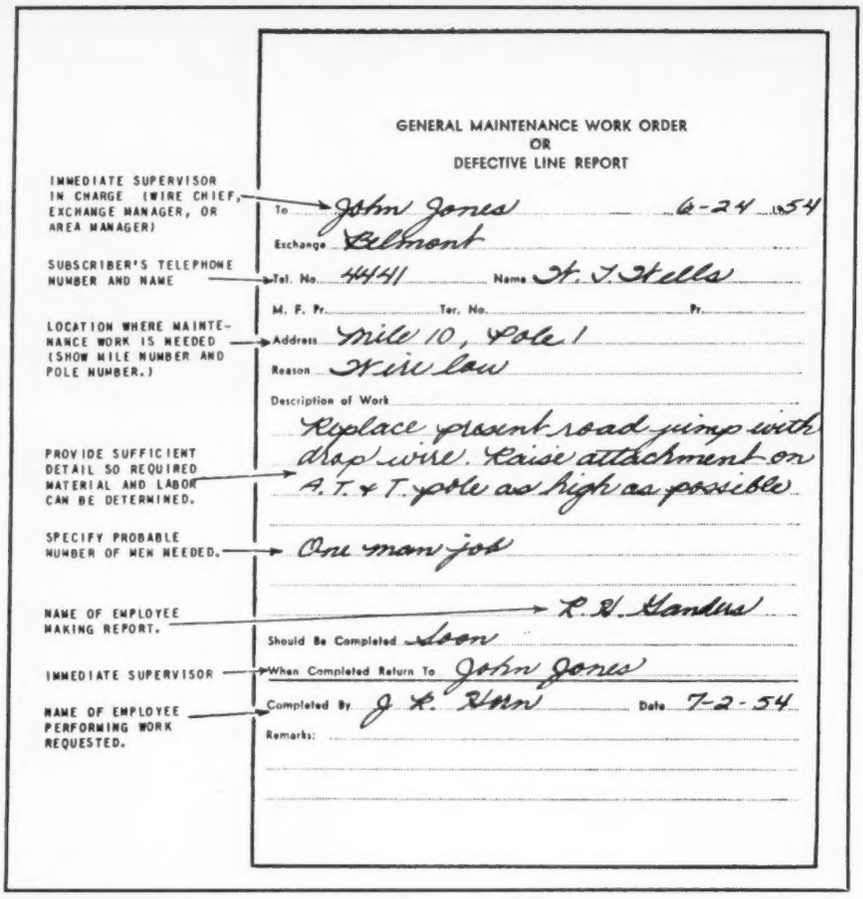
He doesn't need to hold down the hook when installing or maintaining a Type 80 Monophone. The "Installer's Hooklock" does the job—and in effect, provides him with a "third hand". He can forget the hookswitch, work faster, serve more subscribers each day.

Another reason your man gets more done faster is that Type 80 insures *simple* maintenance! Connections are made by handy spade terminals (no soldering!). Allied components, such as the ringer and the ringing condenser, are mounted as units. Twin contacts on hookswitch and dial, and a new sturdy housing all do their part to keep maintenance down. And a screwdriver is the *only* tool required!

But not only is maintenance easy, there's less of it—and that's something telephone men are approving heartily. Type 80's new moisture-sealed balancing network, new transmitter and receiver capsules, and new line compensation adjustment make transmission something to write home about. Send for Circular TM1841 — read all about Type 80's fine transmission, and see its beautiful styling. Order Type 80 Monophones today. *Address: Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7, or call HAymarket 1-4300.*

Type 80 Monophone— the Telephone you designed

AUTOMATIC ELECTRIC®



GENERAL MAINTENANCE WORK ORDER
OR
DEFECTIVE LINE REPORT

IMMEDIATE SUPERVISOR IN CHARGE (WIRE CHIEF, EXCHANGE MANAGER, OR AREA MANAGER) → To John Jones 6-24 19 54

Exchange Belmont

SUBSCRIBER'S TELEPHONE NUMBER AND NAME → Tel. No. 4441 Name H. T. Wells

M. F. Pr. Ter. No. Pr.

LOCATION WHERE MAINTENANCE WORK IS NEEDED (SHOW MILE NUMBER AND POLE NUMBER.) → Address Mile 10, Pole 1

Reason Wire low

Description of Work

PROVIDE SUFFICIENT DETAIL SO REQUIRED MATERIAL AND LABOR CAN BE DETERMINED. → Replace present road jump with drop wire. Raise attachment on A. T. & T. pole as high as possible

SPECIFY PROBABLE NUMBER OF MEN NEEDED. → One man job

NAME OF EMPLOYEE MAKING REPORT. → R. R. Sanders

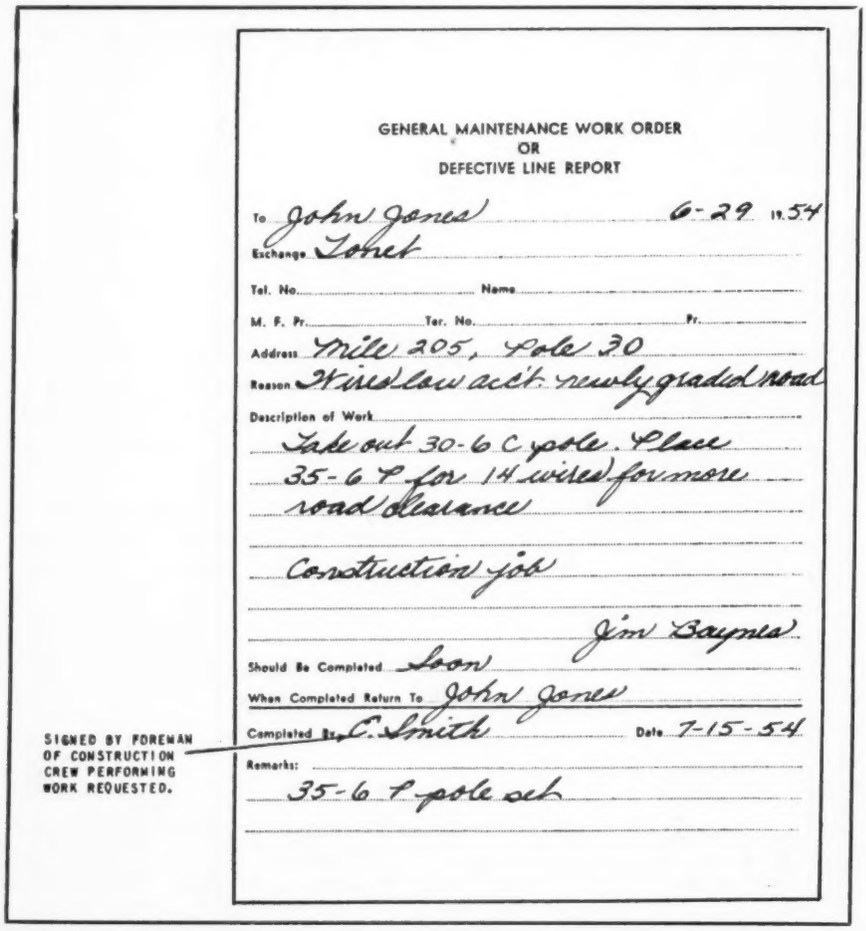
Should Be Completed Soon

IMMEDIATE SUPERVISOR → When Completed Return To John Jones

NAME OF EMPLOYEE PERFORMING WORK REQUESTED. → Completed By J. K. Linn Date 7-2-54

Remarks:

FIGURE ONE: — Memorandum form filled out for local forces to perform work.



GENERAL MAINTENANCE WORK ORDER
OR
DEFECTIVE LINE REPORT

To John Jones 6-29 19 54

Exchange Joliet

Tel. No. Name

M. F. Pr. Ter. No. Pr.

Address Mile 205, Pole 30

Reason Wire low acct. newly graded road

Description of Work

Take out 30-6 C pole. Place 35-6 P for 14 wires for more road clearance

Construction job

Jim Baynes

Should Be Completed Soon

When Completed Return To John Jones

SIGNED BY FOREMAN OF CONSTRUCTION CREW PERFORMING WORK REQUESTED. → Completed By C. Smith Date 7-15-54

Remarks:

35-6 P pole ch

FIGURE TWO: — Memorandum form filled out for construction crew assigned to work.

workers first learn of the condition when actual trouble results.

Another difficulty that contributes to the accumulation of deteriorated items of plant is the small size of the exchange working force which does not allow sufficiently for emergency work. Any unusual number of installation assignments or an abnormal increase in trouble cases because of storms may result in the correction of many observed instances of potential trouble being deferred time and again, until these become actual trouble cases that must be handled along with other fault clearing work. All this adds to the exchange work load and increases operating expenses.

It is obviously poor economics to allow telephone outside plant to deteriorate to the point where service interruptions become frequent and the only solution is to rebuild the plant completely. While telephone lines cannot be built to last forever, it should be possible to properly maintain the lines to give many years of good reliable service.

The remedy is to establish a program of regular inspection of telephone plant that includes two separate but related activities of considerable importance. One activity calls for the training of exchange workers to carefully observe open wire leads, farm spurs, drop wires, cable and wire junctions, and other items of plant in the course of their routine assignments and to correct or report any instances of incipient trouble.

For example, a combinationman on his way to make a farm telephone installation inspects the wire leads as he drives by. At one point, he notes that there is an insulator floating off a wood pole bracket. Even though he sees that this condition will not immediately cause trouble, he stops his truck and climbs the pole to screw the insulator back in place and possibly replace the pole bracket on account of worn threads. A couple of miles farther along, he notes that a drop wire crossing the road is obviously too low. He again stops his truck and gets out to check the drop height. Since a drop pole would have to be set on the other side of the road to bring the drop span to the desired height and he does not have the equipment and material to handle the work himself, he makes out a memorandum on this condition.

LT 140 P

Outside Plant Inspection Report

EXCHANGE PANAMA, TOWN DATE 1-25-55 INSPECTOR G. A. Foster PAGE 1

XXXX POLE NO.	WIRE LOAD	POLES		CROSSARM AND BRACKETS		ANCHOR		GUY		CIRCUIT WIRES TRANS	DROPS	TREES	REMARKS	HANDLED BY
		PRESENT	PLACE	PL.	REM.	PL.	REM.	PL.	REM.					
1	Cable 8I	35' Tel	OK									X	Trim trees to clear drop spans	LF
2	8I	City 30' W	Tel 35' 6P	BA	8'6"					8I	X		W pole improper light and road clearance	CD
3	"	City 30' W	Tel 35' 6P	"	"					"			W pole improper light and road clearance	CD
4	"	City 25' W	Tel 35' 6P	DEA	"	8"	4"	6M	203		X		Transfer 3 #109 I DE & 2 drop spans	CD
5	1 BP	City 30'	OK								X		Raise drop on house	LF
6	2 BP	25'9CT	Rem.										Reroute 1 drop to pole #26, remove 2 drop spans to pole #1.	CD
7	1 BP	City 30'	Rem. Attch.											
8	"	City 25'	Rem. Attch.										Reroute 1 drop to pole #27, remove 2 drop spans to pole #6	CD
9	Cable	Tel 35'	OK										Raise drop on pole 17' street clearance	LF
10	"	"	"			8"		6M					Remove 8 drop spans to pole #11	CD
11	10' 3BP	25' P	"		DA 8'6"									CD
12	" "	City 30'	"		1 BA									CD
13	" "	City 35'	"		"									CD
14	" "	"	"		"						X		Remove 3 BP east to pole #11 and 1 drop span. Place 2 5002 terminals.	CD
15			25' 9P										Drop pole attach drop and span	CD
16	10I 2 BP	City 35'	OK		1 BA						X		Place 1 5002 terminal	CD
17	" "	City 40'	OK		"						2		Raise drop on house for street clearance Place 2 5002 terminals.	CD
18	" "	City 30'CT	Tel 35' 6		X	8"		6M			2		Set pole 3' West	CD
				Place 1 guard arm, 1 104 A terminal, step pole, raise drop on house for street										CD
				clearance, remove a #17 BP wire east to pole #14, Place 1 RD cable east (675') to pole #10 slack span from pole #10 to #11.										CD

IN COLUMN HEADED "HANDLED BY" DESIGNATE CO FOR CONSTRUCTION DEPARTMENT AND LF FOR LOCAL FORCES.

FIGURE THREE: — Example of outside plant inspection report used in listing maintenance items in rural plant.

On his return, he gives it to his supervisor. From the memorandum, the supervisor assigns another man with helper and the necessary tools and materials for placing the pole, or if more help is needed, he may call for a crew from outside that can handle the work. *Figures* 1 *and* 2 illustrate how a typical memorandum form is prepared for different work assignments arising from instances of potential trouble observed by combinationmen.

Since this particular activity may not take care of instances of plant deterioration occurring in remote locations, another phase of the maintenance program is needed. This involves periodic inspection of the entire exchange plant. In the past, the writer has advocated an inspection every two years to correspond to the tree trimming cycle and thus take care of necessary tree pruning and brush clearance along with other maintenance items. However, an interval of one year between inspections is considered more satisfactory, particularly, since the introduction of chemical spraying method of eradicating woody growths has reduced tree trimming to an occasional assignment. With proper planning, the periodic inspection need take only a few days in the average sized exchange.

Although any selected time for the inspection would be satisfactory, it has been found desirable, in the middlewestern areas at least, to choose the summer months for this activity. During this time the trees are in full foliage which facilitates inspection of the woody growths for effective kill by previous chemical treatment and for proximity of live growths to telephone wires.

Inspection Procedure for Rural Plant

WHILE THE inspection procedure will vary with different companies, the important point is that a competent man must be in charge of the inspection. In general, the area or exchange manager, depending on the size of the company, will be the person to qualify for this assignment, because of his extensive experience. He should have a helper to drive his car while he checks the lead along the right of way. As a rule, much of the inspection can be conducted from the car, but on occasion, the inspector should stop the car and make a closer examination,

climbing a pole if required for a better look.

Although the inspector may write down the maintenance items on a ruled pad of paper, it is very convenient to use a form like the one shown in *Figure* 3, since it assures the accurate location of each item recorded as indicated below:

(1) For exchange leads, where the mile numbering system is employed, the mile number given on the rural plant record map (Figure 4) is shown. The pole number in the mile is indicated as "1" for the first pole in the mile in direction away from the central office, "2" for the second pole, "3" for the third pole, and so on.

(2) Poles in spur lines to farm residences are numbered in 1, 2, 3,

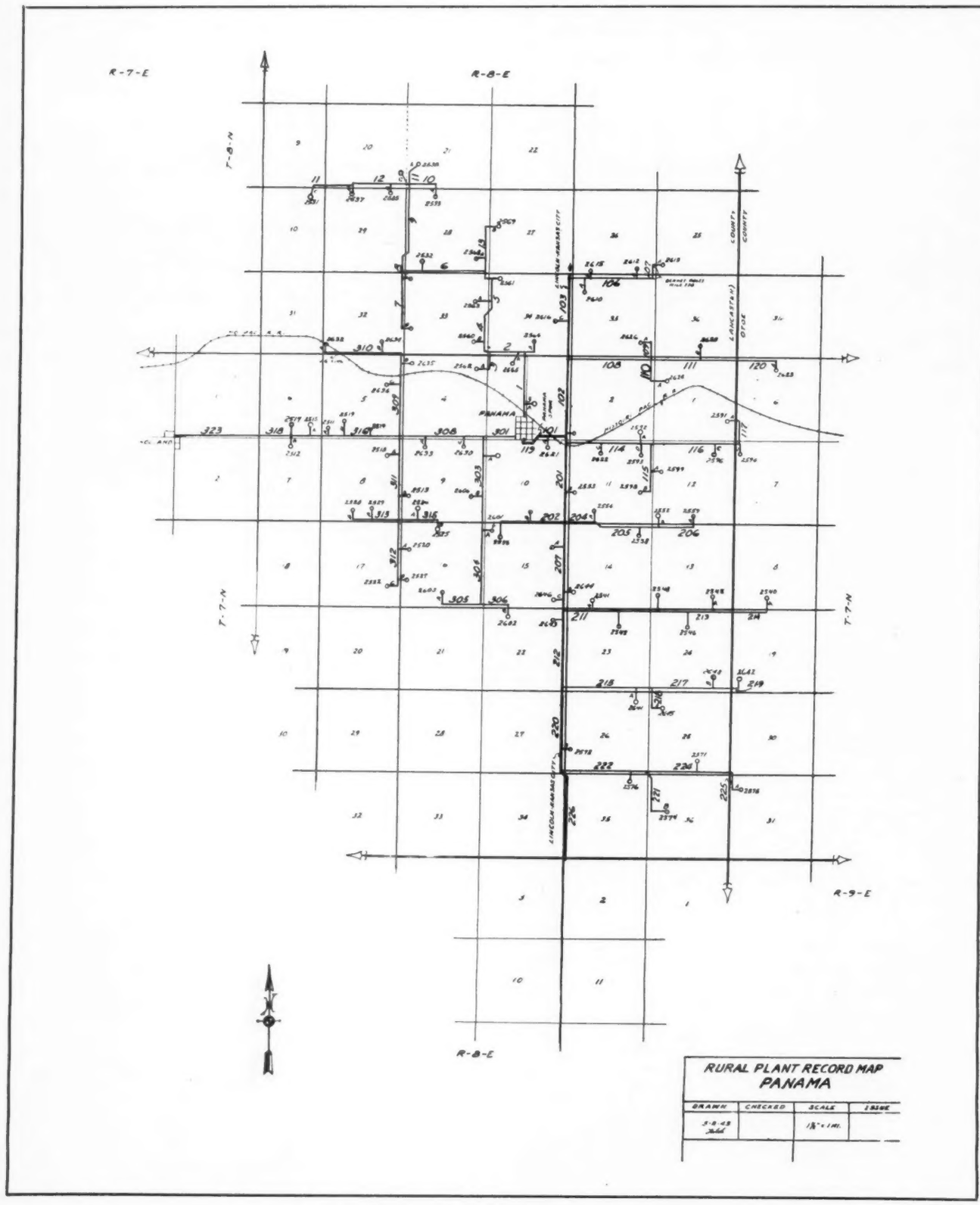
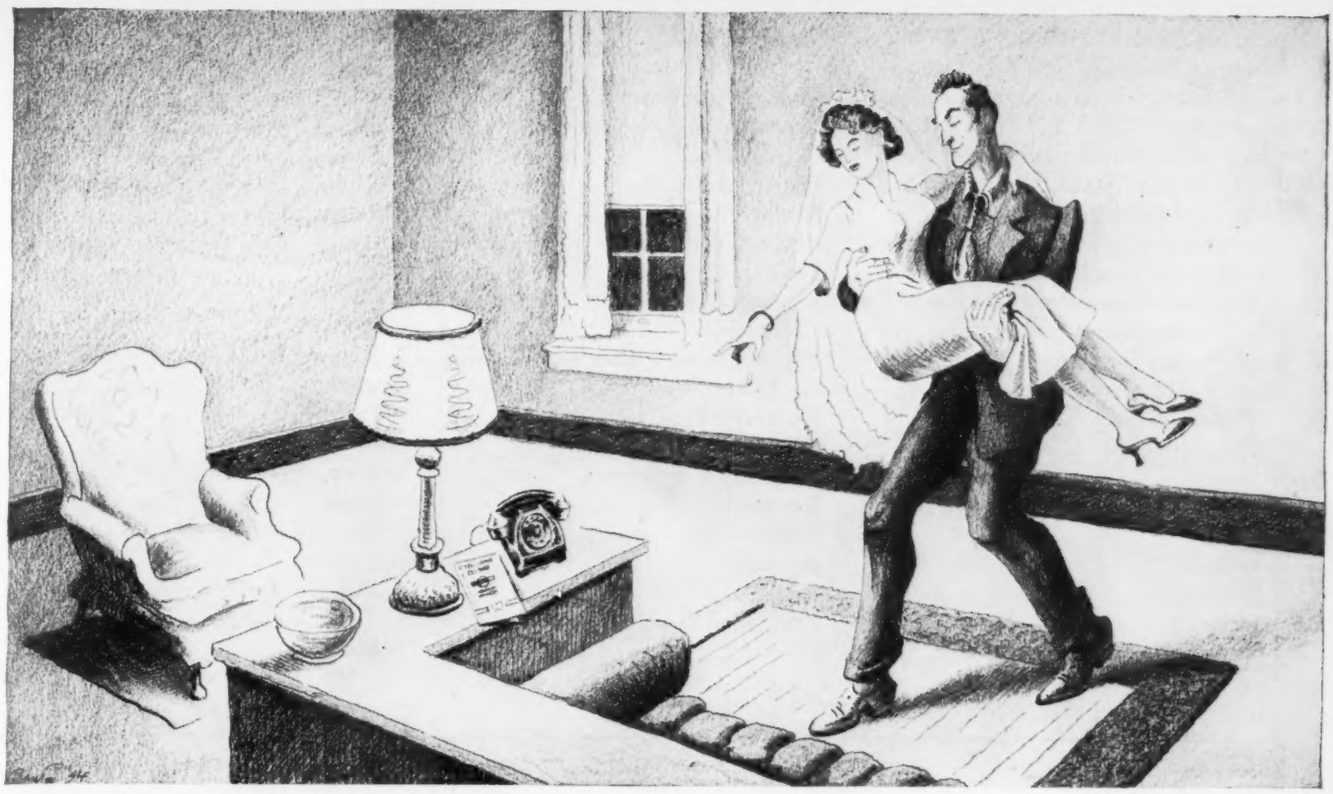


FIGURE FOUR: — Typical rural plant record map.



FIRST TELEPHONE

BY *Thomas Hart Benton*

When the new telephone is installed, the newlyweds *know* they have set up housekeeping.

With every telephone goes a directory to be worn threadbare by the time a new one is issued. New subscribers can find thousands of uses for the traditional American guide to better living.

From association with our clients, we know that telephone men are dedicated to public service. Nothing distresses them more than inability to provide complete service to new subscribers.

The Loomis Advertising Company believes a well developed directory is a major step in rendering complete telephone service.

When you turn over to Loomis Advertising Company the many irksome details of building a modern telephone directory you gain in two ways. You have a directory that is second to none in appearance, utility and revenue. You free personnel to do what they can do best—provide telephone service.

You're invited to get further details of Loomis' complete telephone service—without obligation on your part. Just call or write the Loomis office nearest you.

LOOMIS

ADVERTISING COMPANY

683 cities and towns in 19 states are served by 231 Loomis-built directories.

We have commissioned Mr. Benton to draw four scenes of American life. A limited edition of 9 by 15-inch prints suitable for framing has been ordered. We think they offer a nice public relations touch to telephone office decoration. To get your Benton print FREE, write Wesley H. Loomis III, 810 Baltimore, Kansas City 5, Mo.

Lifts YELLOW PAGE revenue... Builds PUBLIC RELATIONS

"Where to call"

KANSAS CITY
810 Baltimore
HArrison 1270

FORT WAYNE
229 E. Berry St.
EAstbrook 3477

order beginning with the first pole following the main line pole branched off from. Each spur in the mile is designated "A," "B," "C," etc., as shown on the rural plant record map.

(3) In toll leads, the poles are designated by toll pole numbers, usually beginning with the junction pole for the open wire lead.

The following defective or otherwise unsatisfactory plant items are listed on an inspection report form (*Figure* 3):

***Poles*: —**

Place (new pole)
Remove
Replace, (decayed or damaged)
Move
Interset
Straighten
Rake
Stub
Foreign Attachments, Unauthorized
Unused Attachments
Improper joint-use construction
CROSSARMS: —
Place (new arm)
Remove
Replace (decayed or damaged, or bad pins)
Replace missing nut and washer, crossarm bolt.
Replace missing nuts and washers, brace bolts.
Retighten loose nuts.

***Brackets*: —**

Place (new brackets)
Remove
Replace (split or broken, or worn threads)
Renail
SIDE ARM: —
Place
Remove
Replace
ANCHOR: —
Place
Remove
Replace (inadequate to hold load)
Relocate

***Guy, Down*: —**

Place
Remove
Replace (inadequate, defective, or damaged)
Pull slack
Guy guard

***Guy, Overhead*: —**

Place
Remove
Replace
Pull Slack

***Line Insulators*: —**

Place

LT 140 P

Outside Plant Inspection Report

EXCHANGE PANAMA DATE 1-19-55 INSPECTOR G. A. Foster PAGE 1

MILE AND POLE NO.	WIRE LOAD	POLES PRESENT	POLES PLACE	CROSSARM AND BRACKETS PL.	CROSSARM AND BRACKETS REM.	ANCHOR PL.	ANCHOR REM.	GUY PL.	GUY REM.	LINE WIRES TRANS	DROPS	TREES	REMARKS	HANDLED BY
301 6	8I 4ITN	25'CT	OK	1 8'6"	1 8'6"					10T			Bad Xarm	LF
301 8	"	"	"									X	Trim to clear line	LF
301 10	"	20'P	"										Str. pole, place 3-1 pt. bkts., 1-2,5-6, 9-10 cut 3 transpositions	LF
301 11	"	20'CT	"										Str. pole, leaning	LF
301 14	"	16'CW	20' 7P	1-8'6" 2-B	1-8'6" 2-B					12I			Cut out 2 bad joints	CD
301 17	"	20'CT	OK	1 8'6"	1 8'6"					10I			Bad Xarm	LF
301 19	"	30'CT	"			4"		2M					Str. pole, cut 2 transpositions, place 2-1 pt. bkts., 3-4, 5-6 cut slack in 2 Irons	LF
303 8	2I	25'CT	"	2-B	2-B					2I			Cut in transposition	LF
303 9	"	20'CT	"	1-B	1-B					1I			Account cutting transposition	LF
303 17	"	25'CT	"										Spur A now dead	
303 25	"	25'CT	"	2-B	1-6pin					2I			Trees have been cut	LF
303 36	"	20'P	"	"	"					"			Str. pole, trees have been cut	LF
304 7	"	20'CT	"	"	2-B					"			Cut in Transposition	LF
304 9	"	25'CT	"									X	Trim to clear line	LF
304 14	"	"	"									X	Respray from pole #9 to 14	LF
304 20	"	20'CT	"	2-B	1 6pin								Cut in transposition	LF
304 21	"	"	"	1-B	1-B								Account of cutting transposition	LF
305 1	"	20'CT	OK										Mv. pole 6' north, washed out	LF
305 9	"	25'CT	"	2 DEB	2-B						Trsf	trim	Transfer 2 Iron deadend	LF
306 5	"	16'CT	"	1-B	1-B					1I		spray	Respray small hedge west	LF

IN COLUMN HEADED "HANDLED BY" DESIGNATE CD FOR CONSTRUCTION DEPARTMENT AND LF FOR LOCAL FORCES.

FIGURE FIVE: — Example of outside plant inspection report for listing town plant items.

Remove
Replace (broken or floating)
Retighten (on pin or bracket)
Straighten transposition brackets

***Line Wires*: —**

Place
Remove
Replace (corroded or damaged)
Adjust sag (too tight)
Pull slack
Re-tie
Cut out bad splice
Remove debris
Clearance from ground
Clearance from power or other foreign wires

***Drop Wires*: —**

Remove
Replace
Transfer
Reroute
Raise (for more clearance)
Repair
Reconnect (with standard sleeves)

***Trees*: —**

Trim for line wires
Trim for drop
Cut down
Cut underbrush
Spray (chemical treatment)

***Jumpers — Buckarm Corners*: —**

Place
Remove
Replace (damaged)
Reconnect (with standard sleeves)
Tape bare splices (insulated wire)

***Buffer Protection*: —**

Wrong type protector blocks
Missing blocks
Broken jumpers
Missing moisture shield
Pole steps (when required)

***Entries in the inspection report form are explained as follows*:**

MILE AND POLE NO. — Mile number and pole number (counting in direction away from central office). Pole numbers should not be omitted.

WIRE LOAD: — Number and kind of wires in place.

Example: — 61 for six 109 steel line wires. 2 — 104 cu for two 104 copper wires

POLES: —

Present: — Length, class, and timber species of present pole when pole is to be removed.

Example: — 16-10 C for 16 Ft. Class 10 Cedar Pole.

Place: — Length, class, and timber species of new pole to replace present pole or to be set.

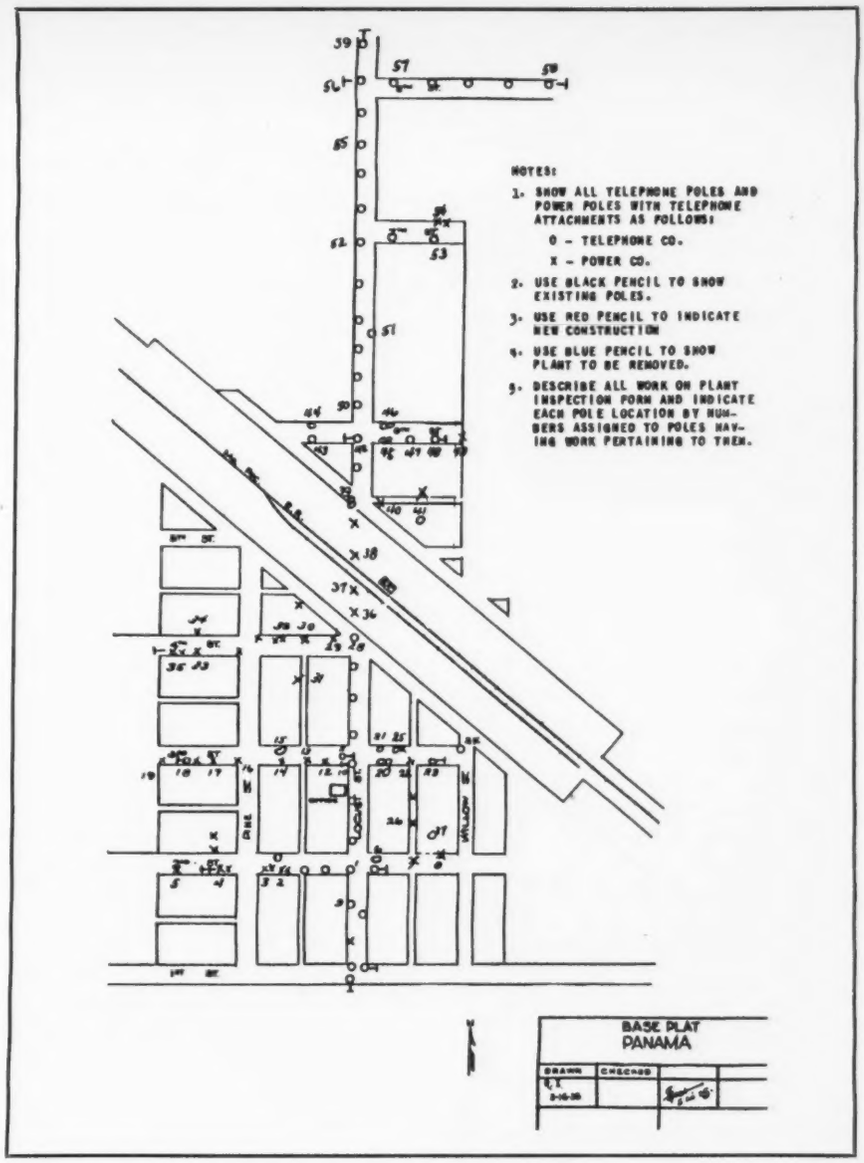

NOTES:
1. SHOW ALL TELEPHONE POLES AND POWER POLES WITH TELEPHONE ATTACHMENTS AS FOLLOWS:
0 - TELEPHONE CO.
X - POWER CO.
2. USE BLACK PENCIL TO SHOW EXISTING POLES.
3. USE RED PENCIL TO INDICATE NEW CONSTRUCTION
4. USE BLUE PENCIL TO SHOW PLANT TO BE REMOVED.
5. DESCRIBE ALL WORK ON PLANT INSPECTION FORM AND INDICATE EACH POLE LOCATION BY NUMBERS ASSIGNED TO POLES HAVING WORK PERTAINING TO THEM.
BASE PLAT
PANAMA

FIGURE SIX: — Example of base plat used with outside plant record form listing plant items in town.

Example: — 25-7 P for 25 Ft.

Note: — Under remarks show work to be done on poles as follows:

Example: — Rake pole 2 Ft. to roads to clear trees. — Straighten pole. — Move pole 10 Ft. north to clear washout.

CROSSARMS AND BRACKETS: —

PL.: — Number and size of crossarm or number of wood pole or dead-end brackets to be placed.

Example: — 1—6P for one 6 pin crossarm
2—8′6″ for two 10-pin pony crossarms
2—10′A for two 10-pin type A crossarms
2—10′B for two 10-pin type B crossarms
1—DE for one dead-end crossarm
2—B for two wood pole brackets
2—DEB for two dead-end brackets

REM.: — Number and size of crossarms or number of wood pole or dead-end brackets to be removed.

ANCHOR: —

PL.: — Size of anchor to be placed.

Example: — 4″ for 4″ screw anchor
5″ for 5″ expanding anchor
8″ for 8″ expanding anchor
NC for plate anchor

REM.: — Size of anchor to be removed

GUY: —

PL.: — Size of guy to be placed.

Example: — 2.2M for 2200-lb. guy
6M for 6000-lb. guy, etc.

REM.: — Size of guy to be removed or replaced

Example: — 203 for 203 steel wire guy (deteriorated or inadequate)

LINE WIRES TRANS.: — Indicate under "Remarks" pin positions involved when wires are on crossarm.

NOTE: — When other work than transferring is to be done on line wires, show particular work under "Remarks" as follows:

Example: — Readjust wire sags.
Pull slack in wires.
Re-tie. Wires down.

DROPS: — Drop wire to be replaced, repaired, transferred, removed, relocated, or rerouted to clear trees or other obstacles, or to be raised for increased ground clearance. Under "Remarks," show work to be done.

Example: — Pull slack in drop wire.
Set drop pole.
Place pole top extension.
Reroute to clear trees.

TREES: — Trees to be trimmed, or cut down. Underbrush to be removed. Trees or brush to be basal sprayed with chemicals.

REMARKS: — Work required to correct unsatisfactory plant condition or any item requiring clarification.

HANDLED BY: — In column headed "Handled By" designate CD for Construction Department or LF for local forces. This column is provided when outside crews are available for any needed assistance.

When inspecting outside plant in town, such as aerial cable, open wire, drops, and poles, maintenance items are listed on a separate form as shown in *Figure* 5. Locations where repairs and replacements are needed are shown on a base plate of the town in the manner indicated in *Figure* 6. These locations are indicated by numbers assigned to poles where repair work is needed.

When looking for defects in the cable, it is considered sufficient to make the inspection from the ground,

GENERAL MAINTENANCE WORK ORDER
OR
DEFECTIVE LINE REPORT

LOCAL TESTBOARD FOR AREA → To Testboard, Stromsburg 9-20 1954

EXCHANGE WHERE MAINTENANCE ITEM IS LOCATED → Exchange Polk

Tel. No. ..... Name .....

M. F. Pr. ..... Ter. No. ..... Pr. .....

MILE NUMBER AND POLE NUMBER. POLE NUMBER MUST BE SHOWN. → Address Mile 65, pole 10

Reason Washout at pole.

Description of Work
Move pole 15 ft. north

Should Be Completed Soon

SIGNATURE OF AREA MANAGER → When Completed Return To B.A. Tom

NAME OF COMBINATIONMAN COMPLETING ASSIGNMENT. → Completed By Dan Price Date 10-6-54

Remarks: .....

LT81-P

FIGURE SEVEN: — Sample of memorandum form prepared from outside plant report for handling by combinationman.

except in locations where a closer inspection appears to be required. In such cases, a ladder may be used or a pole climbed for this purpose. The following cable defects may be noted:

Bowing of cable
Supports (missing or loose)
Terminal defective
Tree clearance

Outside crew in process of adding wire circuits in subscriber regrouping as part of assignment to handle maintenance items.

Climbing space needed
Low drop
Pole rotted or damaged
Riser pipe damaged
Pole stepping not standard
Detachable step needed
Loose or missing pole steps
Grade clamp needed
Lateral damaged
Insufficient clearances from power or light wires in span
Insufficient clearance from power or light wires or fixtures on pole
Improper terminal feed
Drop runs passing terminals.

At junction poles, the following conditions are looked for:

Missing moisture shield (on 83A
Wrong type protector blocks
Missing moisture shield)on 83A protector)
Loose fuse wires (regular or shorted type)
Defective jumpers (to be replaced with #14 insulated wires if frequently burned out by lightning)
Bent or loose terminal mounting
Loose or damaged pole seat

Open wire feeds and drops in town areas are inspected in the same manner as for rural plant, with the exception that their locations are shown

on the town plat with reference numbers indicating their site entered on the inspection form.

On completion of the inspection, the manager may revise the inspection forms, making copies if necessary, for legibility and clarity of directions for the necessary work. (In larger companies, proper administration may require transmitting copies to higher level supervisors for approval of work items required.)

Since the maintenanse work should be done as soon as possible to avoid carrying over incompleted jobs into the next inspection period, and at the same time not interfere with routine work, the following procedure is suggested to assure the manager of complete control of the work assignments.

Using the inspection forms, rural plant record map, and town plat for each exchange under his supervision, the manager prepares duplicate copies of memorandum form for each maintenance item listed on the inspection forms as illustrated in *Figure* 7. On copies of the rural plant record map and the town plant, he enters maintenance items marked, as for example, "Rem. side arm," "Mv. pole 10′ N.," "Adj. drop sag," etc. He turns original copies of the memorandum forms and the marked maps over to the local testboard for assigning maintenance work to his local forces, retaining the duplicate copies of the memorandum forms for his reference in checking work progress.

As each combinationman is given a routine trouble or station installation assignment, the testboard personnel checks the marked maps for maintenance items in the area traveled by the combinationman and gives him copies of the form covering items in the area. When the man completes a maintenance assignment, he fills out the proper memorandum form to indicate that the work has been done, as shown in *Figure* 7. On his return to the headquarters, he turns in all memorandum forms whether completed or not. The testboard personnel then erases or crosses out completed jobs on the plant record map or town plat and transmits the completed forms to the manager for checking against his copies on file. By this method, the manager is made aware of any maintenance assignments that have not been handled and can investigate the reasons for their delays.

When an outside crew is called in to handle maintenance work beyond the capacity of the local forces, the foreman is given a copy of the inspection form. The manager can then use his own copy in observing the work done by the crew.

Subscriber regrouping may be required in the exchanges. When a study of the rural plant record maps indicates regrouping to be advisable for economical use of present rural lines and to provide good telephone service, this work should be handled along with the maintenance items to save time and effort.—***John S. Reed***

Bell of Canada Reports 6% Boost In Earnings

Earnings of The Bell Telephone Co. of Canada increased 6% in 1954 to $28,549,135 from $26,848,740 in 1953, the annual report shows. Earnings per share were down at $2.44, as against $2.65.

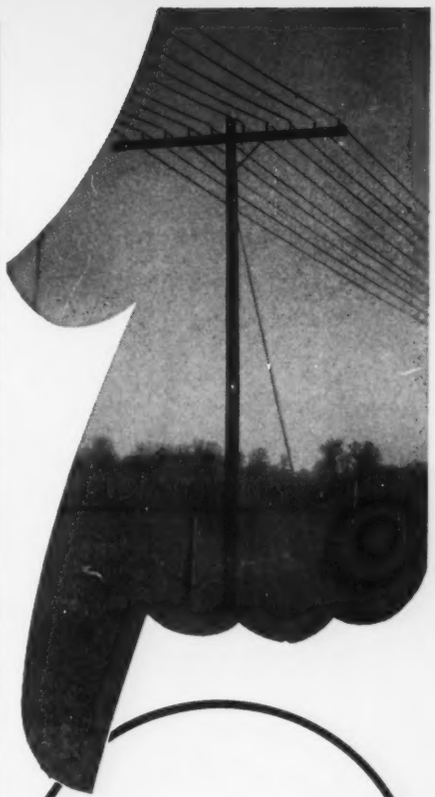
Bell of Canada spent a record $105,300,000 on new construction, up $20 million from 1953, and also installed a record number of telephones — 167,002. There were 2,294,458 telephones in service at the end of 1954 — located mainly in the Provinces of Ontario and Quebec.

Demand for service continued at a high rate with 49,164 unfilled orders at the year end for main service and 34,367 unfilled orders for individual service in place of party lines.

"In view of the continuing high level of unfilled orders for service, we have decided to increase considerably the very large construction programs previously projected for 1955 and 1956," T. W. Eadie, president, states in the report.

Revenues totaled $223,275,204, 9% over the 1953 figure of $204,564,646. Revenues from local service were 8% higher at $138,045,267; from long distance service 9% higher at $68,238,901. Miscellaneous operating revenues and other income increased 21% to $16,991,036 and includes revenues from special communications services and directory advertising.

Total operating expense rose 10% to $153,721,763 the result primarily of larger payrolls and an increase in depreciation expense due to the substantial increase in plant.



LOWER
Cost Per Mile

● Efficient rural telephone circuits can be built at minimum overall cost where Crapo HTL-135 High-Tensile Line Wire is used to full advantage. For Crapo HTL-135 makes possible spans up to 350 feet in heavy, 540 feet in medium and 650 feet in light loading districts. Longer spans mean fewer pole structures with substantial savings in material and labor costs per mile.

The rugged tensile strength of Crapo HTL-135 and its heavy galvanized coating provide dependable and economical service life on typical rural lines.

Ask your jobber for details or write direct for engineering data!

INDIANA
STEEL & WIRE COMPANY
Muncie, Indiana

They laugh... then look

Cutlery to restaurants...automobiles to tires...whatever products and services people need, the 'Yellow Pages' make it so much easier to find them.

The more people use the 'Yellow Pages,' the better it is for them, for 'Yellow Pages' advertisers, and for all of America's telephone companies. Across the page are typical advertisements—amusing, yet full of a real selling message—that bring a smile as they direct attention to America's buying guide. Millions see them in 17 national magazines.

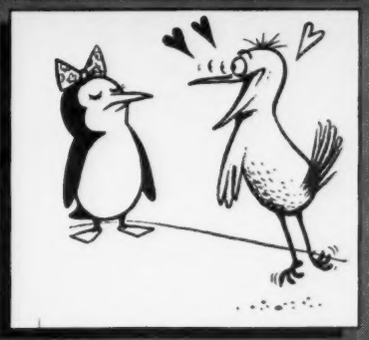
Looking for Something?

RESTAURANTS

FROM CUTLERY TO RESTAURANTS
WHATEVER YOU NEED

Find It Fast In The 'Yellow Pages'

Looking for Something?



DRESS SUIT RENTAL

FROM DRESS SUITS TO TAILORS
WHATEVER YOU NEED

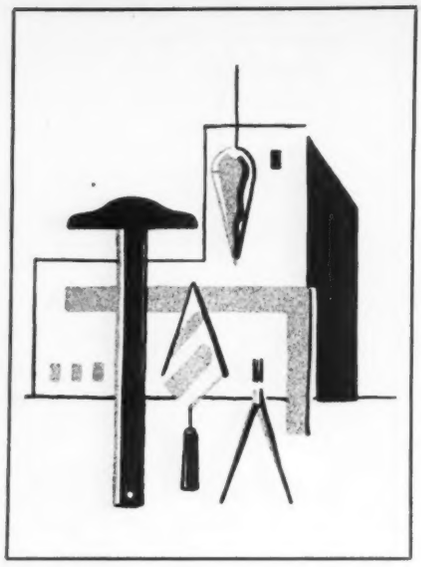
Find It Fast In The 'Yellow Pages'

Looking for Something?

AUTOMOBILES

FROM AUTOMOBILES TO TIRES
WHATEVER YOU NEED

Find It Fast In The 'Yellow Pages'



New Equipment and New Methods

By JOHN G. REYNOLDS

"SURE-SIGHT" METHOD aids traffic employes . . . Digger reduces post-hole costs to 88 cents each . . . Wire stringing by heliocopter.

"Sure-Sight" Method Aids Traffic Employes

THERE'S NOT MUCH that won't be meeting the eye in Illinois Bell's State Area Traffic. According to ILLINOIS BELL TELEPHONE NEWS, a "Sure Sight" course, patterned after the program which taught sailors to recognize aircraft, is training Traffic girls to see more and see it easier. At the conclusion of the 12-weeks' course they will be able to remember more of what they've seen and remember it more accurately. Net result is the ability to do their jobs more easily and with less fatigue — and enjoy life more.

The lightening of the work is only one part of the picture. The course also is useful to the girls in their off-hours. At the movies or watching TV, for example, graduates will see details that escape untrained eyes. Hazards of driving are minimized by the training in peripheral vision — seeing "from the corner of the eye."

Actually, what the course strives to do is develop skill in the use of the eyes. The magic of a Johnny Antonelli pitch or the grace of a Pavlova arabesque didn't come naturally. Such skills are acquired only through training and practice. And, likewise, skill in seeing can only come through the same procedure.

The course was first introduced at the company's Chicago Heights Office where satisfactory results encouraged State Area people to try a second experiment. Operators at Elmhurst Office received "Sure Sight" instruction as part of their pre-cutover training before being transferred to Oak Park's Office Two. So successful were the results, that the integration of the group was accomplished in a surprisingly smooth manner. The program is now in full swing at Oak Park Office for a third of the Traffic people. The remainder of the Oak Park force will be trained later.

Each "student" attends three 30-minute classes each week. Slides containing various combinations of numbers are flashed on a screen for a fraction of a second. The girls endeavor to transcribe accurately what they have seen. As training progresses, more digits appear on the slides. In addition, location of the numbers on the slides varies. From the center position they have moved to corners and sides. It's here that the "corners of the eyes" come into

Army Signal Corps servicemen assemble the terminal units of a new portable 12-channel telephone system designed for field service by Bell Telephone Laboratires. The equipment would be normally operated under cover. The "stackable" units shown are part of a system which can carry 12 conversations simultaneously up to distances of 200 miles. An over-all communication system of about a thousand miles can be formed by linking together several systems.

play. This "Sure Sight" program is based on sound psychological principles. Assisting the Illinois Bell's State Area Traffic staff in conducting the program is Dr. Samuel Renshaw, head of Ohio State University's experimental psychology laboratory. During World War II Dr. Renshaw was in charge of the development of the aircraft recognition program for the Navy.

But the best proof of the program's effectiveness is the testimony of the students themselves.

"A wonderful thing," says Violet Collins, an information operator in Oak Park's Office Two. "When you're looking for numbers all day long anything designed to make your work easier is good. Since I've been developing this skill, I find I'm far less fatigued at the end of the day. And I've noticed the difference outside the office, too."

"I think it's great," echoed Elsie Dutcher, senior clerk in Office One at Oak Park. "Sorting toll tickets is part of my job. Just a glance tells me the correct number now. It makes the work easier and more accurate, as well. And I'm constantly amazed at the things I'd been missing on TV."

And the other girls are equally loud in their praises.

Digger Reduces Post Hole Cost to 88c Each

SERVICE PIPE LINE CO., Tulsa, Okla., has realized considerable savings by mechanizing the operation of digging holes for the placement of power and communications line poles.

The 5-foot deep excavations were formerly dug by hand in some cases, and by a tractor-mounted power auger in others. Neither method was satisfactory, however, because of the prevalence of loose rock and sandstone in the area. A Sherman Power Digger mounted on a Ford Tractor has proved to be the answer, regardless of excavating conditions, while a front end loader on the same tractor is utilized for moving and setting the poles and back-filling and tamping after they are in place. The poles are strung by truck whenever possible, but where terrain conditions do not permit the use of trucks, the tractor can string them without having to make right-of-way.

BUTT OF POLE is pushed over to hole by tractor-mounted front end loader. Top of pole is then picked up and laid on loader bucket. Raising of loader and forward motion of tractor combine to slide pole into the hole.

The illustrations show construction of a power line to connect a rectifier with a Service pipeline near their Shoshoni Station, three miles east of Shoshoni, Wyoming. There are three and one-half miles of communications line at this same location. Along this communications line, the Service Pipeline Division Electrical Supervisor said that a man digging by hand was able to average only three holes per day, and in sandstone, but one hole. The Sherman Power Digger averaged 40 holes per day. Cost is about 88 cents per hole with the Sherman Power Digger; $5.50 per hole by hand, and more than $16.00 per hole digging by hand in loose rock.

Service Pipe Line Co. owns two Sherman Power Diggers, and uses them on such other projects as ditching for crude lines and manifold, foundation trenching around tanks, and for a variety of excavating for construction and general maintenance. The Sherman Power Digger is manufactured by Sherman Products, Inc., Royal Oak, Mich.

Wire Stringing By Helicopter

"OPERATION SKYHOOK," a telephone construction project which called for stringing wire by helicopter over 2½ miles of rugged backcountry, took place recently in the foothills of the San Diego range near Santa Ana, Calif.

The Pacific Telephone & Telegraph Co. was faced with the task of stringing wire across rough country to bring telephones to about 60 people who were waiting for service in Cook's Corners, Shady Oaks, O'Neil Park, and other places.

When they were figuring how to get the job done, Pacific's construction crews hit upon a novel idea: For the first time in telephone pole-line construction, a helicopter was used

HOLE FOR POLE is dug in a matter of minutes with the tractor-mounted Sherman Power Digger.

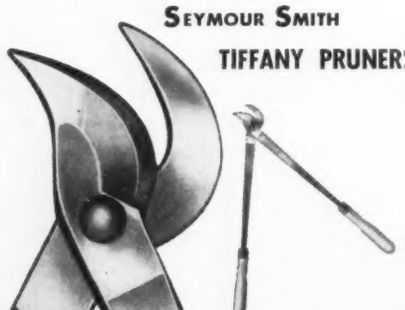
POLES ARE ATTACHED to front end loader and moved to location quickly, regardless of terrain conditions, by the speedy tractor.

Illustrated above is No. 11 Tree Pruner with center cut action by tempered steel blade that easily handles 1" branches. Head is reinforced malleable iron. Spruce poles with telescoping aluminum joints. For heavier work No. 12-18, capacity 1½". Also Pole Saws.

for clearing brush...

SEYMOUR SMITH

TIFFANY PRUNERS



Hand forged throughout. Fast and easy double cut action with thin blades shaped to "draw in." Improved bolt and nut joint, through handle and riveted grip fastening.

FAST-CUTTING SAWS

Blades of Swedish charcoal steel. Large, deep teeth with heavy set to prevent binding. Hand and Pole models for all work up to chain sawing.

Quality Tools
SEYMOUR SMITH
Since 1850

Send for FREE literature
Seymour Smith & Son, Inc.
4404 Main St.,
Oakville, Conn.

to do work otherwise handled by ground crews.

Supervising Construction Foreman Mark West needed only a quick look to see the difficulties of the project. The route across steep canyons was covered with 75-foot oak trees, brush, and poison oak. He decided that this canyon-hopping project was tailor-made for a helicopter.

What would have taken ground crews a week or more to accomplish, was finished in an hour and a half by helicopter. One man piloted the machine while another placed quarter-inch manila rope between the pin positions on the cross-arms.

Ground crews then pulled the rope which was, in turn, attached to six coppered-steel wires.

Using a 2000-foot spool, the helicopter played out that much rope at a time. As many as 10 spans were placed before it became necessary to take aboard another spool of rope. Some spans were as much as 600 feet. In all, rope was placed over the cross-arms of about 30 poles. "Operation

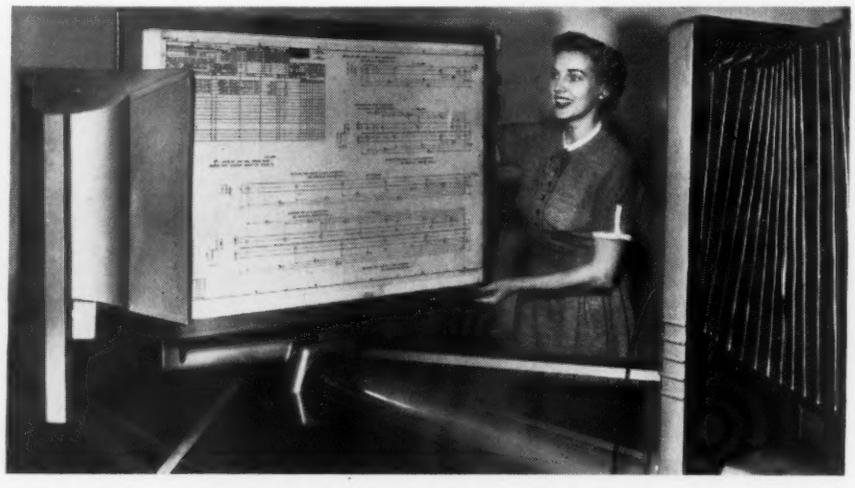
New Copying Equipment Speeds Engineering Drawing

NEW XEROGRAPHIC copying equipment, which will reduce engineering drawings up to 24" x 36" onto a 12" x 18" paper master and make possible 100 copies in about five minutes at a new low in production costs, has been announced by The Haloid Co., Rochester, N. Y.

Large originals up to 24" x 36" are copied by reduction onto the camera's 12" x 18" XeroX sensitized plate and transferred to paper masters, by xerography, for runoff of multiple copies on an offset duplicator. Medium-size drawings (12" x 18") can be copied size to size, while several small drawings at a time can be copied in the same size or enlarged individually to 12" x 18". Original masters may be filed for runoff of additional copies when needed.

Xerography is a dry, electrical process requiring no intermediate negative. No sensitized papers, water or liquid chemicals are used. Use of XeroX Model 1218 copying equipment permits use of precut rather than roll paper. Wet processing and hand shearing operations are eliminated. The reduced size and thinner paper save filing space as well as folding and unfolding time. The duplicated copies are clean and sharp, easy to read in the reduction.

The XeroX 1218 equipment consists of a copying camera, charge unit, developing tray, cleaning tray, transfer unit, and a fuser for making the image on the paper master permanent.

The camera, manufactured especially for The Haloid Company by Robertson Photo-Mechanix Inc., is equipped with a Goerz f/10 Artar process lens of 16½" focal length with a calibrated iris scale for maintaining constant exposure conditions with change in size of reproduction. Two 1000-watt, 50-hour projection lamps are mounted on protruding arms of a glass-covered copying board, and the board itself, with ¼-inch registration marks along the center lines, tilts through a 90° arc from the horizontal to the vertical plane. Focusing may be done by means of a percentage scale on the side of the cam-

EXPOSURE OF 24" x 36" engineering drawing being readied for 12" x 18" reduction in XeroX Model 1218 Camera.

era bed or directly by ground glass. An automatic timer scaled from zero to three minutes shuts off the lamps between exposures.

The combination charging and transfer unit is self-contained and semi-automatic. On it the XeroX plate is first given a light-sensitive, positive electrical charge, and after exposure in the camera the image on the plate is brought out in the developing tray by a cascading, negatively charged powder. The image is transferred to a paper master when both plate and master are passed again through the charging and transfer unit.

The fuser is a drop-chute system with thermostatically controlled heat. In it the powder image on the paper master is made permanent in about fifteen seconds.

Cleaning of the XeroX plate for re-use is done in the cleaning tray. The tray is rocked a few times while a cleansing powder cascades over the plate, removing the residual image. Plates may be used hundreds of times before replacement.

New Standing Mat

THE AMERICAN Floor Products Co. has announced a new industrial and commercial floor matting designed to reduce employe fatigue.

The product is called Neo-Sponge comfort mat and is made through a special patented process of blowing millions of inert nitrogen bubbles into Dupont's Neopreme.

Its properties are: permanent resiliance, high electrical resistance (61,000 volts before puncture), and an almost impervious resistance to acid, oil, grease and heat. The mat will not absorb liquid or vapor.

Neo-Sponge is especially suited to any type of business where employes stand at their jobs. The molded tread design on both sides makes it reversible and offers excellent non-slip foot traction.

Fault-Locating Wheatstone Bridge

A NEW WHEATSTONE and fault locating bridge designed for convenient operation in the field is offered for numerous applications throughout the communication industries by Electro-Measurements, Inc.

This bridge has been specifically engineered for rough use in the field, yet offers excellent readability with high accuracy and reliability. The compact fault-locating bridge is supplied in a strong, light weight case that has been completely weatherproofed. Direct straight-line readings are made on ESI's exclusive DEKADIAL. All dials have been designed for ease of operation. Precision structural components including ceramic rotary switches with solid silver alloy contacts and firm positioning switch detents assure good performance.

As a Wheatstone Bridge, resistance

Neo-Sponge comfort floor mat — especially useful where there are standing employes. This mat offers a reduction in standing fatigue and is a safeguard against injury from slipping, heat, or electrical hazards. It is made from Dupont's Neopreme and contains no rubber. Resistant to oil, grease, wear and acid, Neo-Sponge is available in both ¼" and ⅜" thickness.

COTTON
Serviceable for all around uses. Standard everywhere.
NYLON
Smooth texture, easy to handle. Preferred for switchboard use.
NEOPRENE
Very popular because easy to keep clean. Moisture and grease proof.

Runzel

CORDS

the WORLD'S FINEST

...for every purpose!
...for every instrument!

Take your choice—Neoprene, Nylon or Cotton. They're all high quality cords made in accordance with Runzel high standard of quality. We carry large stocks of cords to meet every need. Our geographical location means Quick Service.

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"Dr. Livingstone, I presume?"

In the early days, about the only way to gather news from the far corners of the world was by personal observation passed along by word of mouth or delivered by hand. That's how those four famous words came into being. Henry M. Stanley was sent by James Gordon Bennett, owner of the New York Herald, to find missionary David Livingstone. When he found him on November 10, 1871 at Ujiji, Tanganyika, Central Africa, he greeted him with "Dr. Livingstone, I presume?"

It was in this era in America that the first Hemingray Glass Insulators were made. Through constant research and development they have kept pace with the communication industries of the world.

There is an insulator design suitable for every communication pole-line requirement. Most jobbers carry complete stocks. Write for free descriptive catalog. Kimble Glass Company, subsidiary of Owens-Illinois, Toledo 1, Ohio.

HEMINGRAY INSULATORS

AN (I) PRODUCT

OWENS-ILLINOIS

GENERAL OFFICES · TOLEDO 1, OHIO

New, fault-locating bridge.

within a zero to 1.2 megohm range can be measured directly. For fault locating measurements, Varley Loop ratios offered by the instrument are 1/1, 1/4 and 1/9; Murray Loop Ratios include 10, 100, and 1000. The use of precision wire wound resistors assures accuracy when making measurements of resistances and fault distances.

In addition, Electro-Measurements, Inc., has provided several extra features to simplify measurements. These include a new loop selecting switch arrangement built directly into the DEKADIAL and a new battery reversing switch to check error from external line voltage sources. Battery power is used only when the galvanometer push-buttons are depressed. When necessary, these buttons can be locked while making measurement settings. All battery power is automatically disconnected from the bridge when the instrument lid is closed. Batteries are isolated from the electrical components in a special leakproof compartment which when opened facilitates easy cleaning and simple battery replacement. Provisions are made for the use of an external galvanometer and external batteries when necessary. This external equipment can be easily and quickly connected to the special binding posts provided. When accessory equipment is used, the internal meter movement and batteries are automatically disconnected from the circuit.

In the field, this instrument can also be used as a continuity checker, and provisions have been provided for making capacitance checks for open line test with the use of an external capacitance standard and tone source.

Laminated Pole Construction Improves Pike Poles

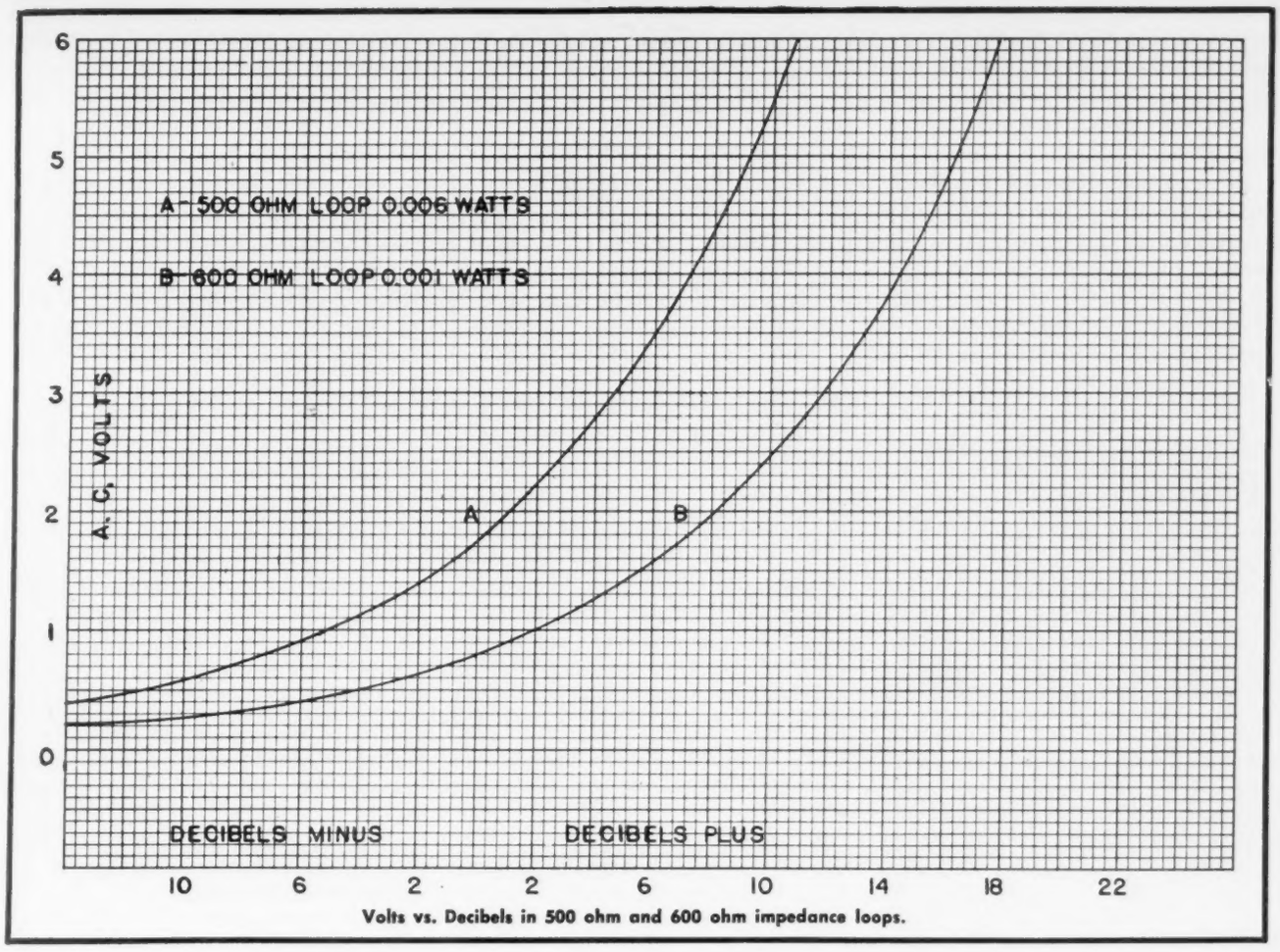
THE PROBLEM caused by the serious shortage of Douglas fir in proper lengths to make one piece pike poles has been solved by the A. B. Chance Co. Centralia, Mo., which uses its hot line tool manufacturing technique for the construction of pike poles from laminated Douglas fir.

Lamination insures straighter, more uniform poles and increases the stiffness over old, solid poles. Because the grain of the laminated pieces runs in different directions, these pike poles resist splitting, thus reducing the possibility of long, jagged points which are always a menace to linemen. Tests on the new laminated pikes show them to be equal, and often superior, to single board pike poles in all aspects — strength, physical life, etc.

Pike pole constructed from laminated Douglas Fir.

The 2″ and 2¼″ diameter laminated pike poles are made of two or more fir boards bonded together. Three or more fir boards are bonded together to produce poles of 2½″ in diameter. The new laminated pikes will be available in lengths of 10, 12, 14, 16, 18 and 20 feet. A new addition to the line is a 2¼″ pole available in lengths of 14 through 20 feet. Its strength is greatly increased over the 2″ size.

Chance Maplac, a tough, moisture and abrasion resistant plastic, is used as a protective coat on these new Chance pike poles. Maplac increases the service life of pikes and adds to their safety. This coating prevents splintering and reduces time lost due to hand injuries. Chance pikes will be bundled in scored fiberboard wrappers for protection against damage during shipment.



Volts vs. Decibels in 500 ohm and 600 ohm impedance loops.

"Questions and Answers"

Edited By JAY G. MITCHELL

***IN THIS INSTALLMENT** of "Questions & Answers," Mr. Mitchell discusses — Calibration of the Decibel Meter for Direct Reading in Dbm.*

QUESTION: — *The recent series of your articles on the* DECIBEL *have been of great help to the members of our Plant and Engineering Departments. These departments report that they are now able to work out some plant transmission problems with fair success within their own organization. However, we have been asked to write the following question, the answer for which has not been clearly set out.*

Since the calibration of the Decibel Meter is based on the difference of potential between the terminals of a loop of 600 Ohms impedance when the transmission current is passing through it why does not the bridging of the 600 Ohm loop across the circuit being tested, in itself, lower the voltage and destroy the reading by that fact? The case of a telephone set is cited as an illustration of this query. When the Decibel Meter is connected across the terminals of such a telephone its very presence acts as a shunt and reduces the voltage, theoretically at least, of the output current. It would seem to be necessary to use a loop of higher impedance than 600 Ohms in order to reduce this distortion of the conditions being measured.

ANSWER: — This very intelligent question displays a satisfactory understanding of the matter and the difficulty outlined does not appear to have been covered in the previous material. The dependable metering of the *power*, which may be the measure of the strength of the electric

current which produces transmission, is very difficult for several reasons and this is because such currents are alternating, of many frequencies from moment to moment and are comparatively very weak.

These characteristics, low voltage, variable frequency, low and changing power content make it difficult to compare them by conventional methods which are suitable for other types of electric currents. The *power* dissipated in a fixed impedance can be readily compared by an instrument which is sufficiently sensitive to afford an indication of the *voltage* at the terminals of the impedance because the *power* is directly proportional to the voltage and the amperes in a circuit in which the impedance is a constant value.

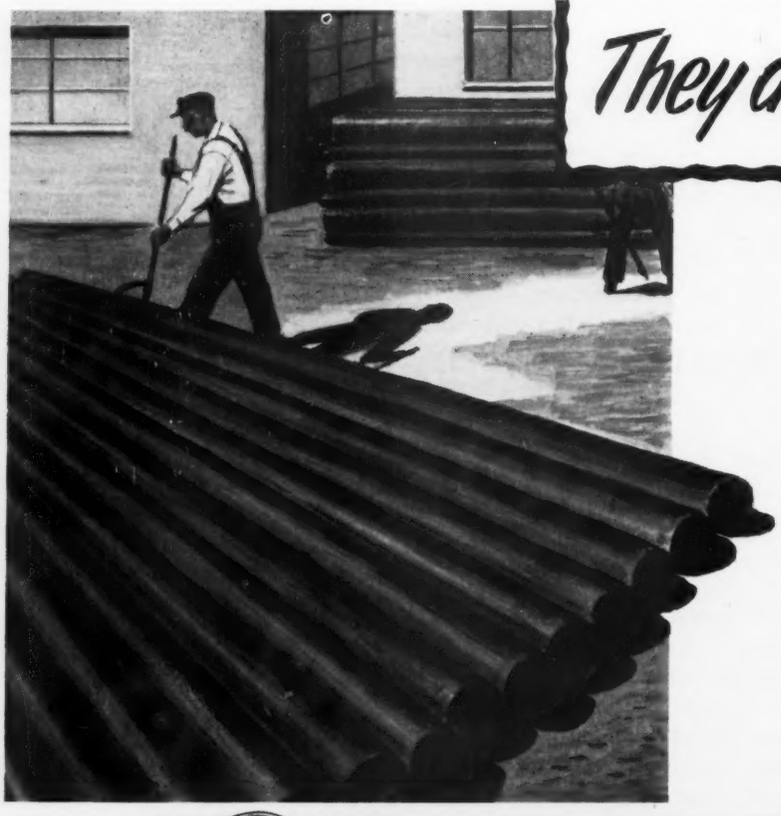
In the conventional system which is used almost exclusively in telephone transmission studies the unknown electric *power* is compared with that required to bring about an expenditure of 0.001 watt in a 600 Ohm loop. It must be remembered, and this repetition is for emphasis, that the electrical power expended in any loop is directly proportional to the drop in voltage in the loop and to the strength of the current in amperes.

"There's no future in *any* job —it's in the one who *holds* it!"

In a loop of 600 Ohm impedance in which 0.001 watt is being expended the voltage drop in the loop must, according to Ohm's Law, be approximately 0.7746 volts. This group of conditions, namely the expenditure of 0.001 watt in a loop of 600 Ohms at a voltage of approximately 0.7746, has been selected as the Zero Reference Level for the comparison of various telephone transmission conditions.

An output, for instance, from a telephone instrument would properly be related to this set of conditions in the evaluation of the equipment from the standpoint of transmission effectiveness. The method of computing the Decibel has been set out fully in previously published sections and may be reviewed if this is not clear. Decibels based upon this set of circuit conditions are given, in order to avoid confusion the symbol Dbm, the letter "m" being added presumably to indicate the use of 0.001 watt (a milliwatt) as the power expended in a loop of 600 Ohms.

There is another system in use in some branches of the communication industry in which the computations are based upon the use of a 500 Ohm loop and the expenditure of 0.005 watts. The basis has been developed on exactly the same principle as that set out but, owing to a difference in the constants, the voltage expended in the 500 Ohm loop is approximately 1.730 volts for the Zero Reference Level. This basis is not widely used in the telephone segment of the communication industry. The graphs shown on page 83, which were first published in this series in December, 1953 in TELEPHONE ENGINEER & MAN-



They all LOOK alike!

TRUE, poles do look alike. But with poles it's just as with pencils and potholders, wise buyers realize that "look alikes" may not perform alike.

Taylor-Colquitt poles may look like many others . . . yet year after year will out-perform others. They assure maximum strength, uniform high quality and consequently last far longer.

Why? Because of Taylor-Colquitt's long established policy of:

First — Make the finest poles today . . .

then — find through research how to improve for tomorrow.

Because of our emphasis on research, our poles are better today than ever before.

When it comes to "look alikes" in poles, two good guides many buyers use are:

(1) Their own experience.
(2) The reputation of the manufacturer.

That's why we are so careful to keep on pioneering in new methods and improving our poles through research.

Taylor-Colquitt poles are distributed to independent telephone companies exclusively by Automatic Electric Sales Corporation, 1033 West Van Buren Street, Chicago 7, Ill.

TAYLOR-COLQUITT CO. TIMBER CONSERVATION T-C

TAYLOR - COLQUITT CO.
SPARTANBURG, SOUTH CAROLINA

PLANTS AT SPARTANBURG, SOUTH CAROLINA AND WILMINGTON, NORTH CAROLINA

CALIBRATION DATA FOR DECIBEL METER

Direct Reading in Dbm. (0.001 Watt in 600 Ohm Line)
Instrument Internal Impedance 5,000 Ohms.

A.C. Volts	Amperes	Watts	Power Ratio	Sign	Dbm.
0.05	.00001	.0000005	00.00416	minus	23.81
0.10	.00002	.0000020	00.01664	minus	17.78
0.15	.00003	.0000045	00.03744	minus	14.27
0.20	.00004	.0000080	00.06656	minus	11.77
0.25	.00005	.0000125	00.10425	minus	9.83
0.30	.00006	.0000180	00.15013	minus	8.24
0.35	.00007	.0000245	00.20434	minus	6.90
0.40	.00008	.0000320	00.26688	minus	5.74
0.50	.00010	.0000500	00.41701	minus	3.80
0.7746	.00015	.0001199	01.00000		0.00
1.00	.00020	.0002000	01.66805	plus	2.23
1.50	.00030	.0004500	03.75309	plus	5.84
2.00	.00040	.0008000	06.67223	plus	8.24
2.50	.00050	.0012500	10.42535	plus	10.18
3.00	.00060	.0018000	15.01251	plus	11.77
3.50	.00070	.0024500	20.23700	plus	13.09
4.00	.00080	.0032000	26.68890	plus	14.26
4.50	.00090	.0040500	32.77814	plus	15.28
5.00	.00100	.0050000	41.70141	plus	16.19
5.50	.00110	.0060500	50.45872	plus	17.04
6.00	.00120	.0072000	60.05004	plus	17.78

AGEMENT, show the relation between the Dbm. and the Db. clearly.

Now it should be obvious that a high impedance in the Decibel Meter, in any case, would produce less distortion in the basic conditions when the meter is connected across any transmission condition. In order to illustrate this and some other points there is shown above a tabulation for the calibration of a Decibel Meter having an internal impedance of 5,000 Ohms. The use of as high an impedance as possible is, however, to be recommended.

It will be noted, on an examination of the calibration data table, that a drop in voltage of 0.7746 is associated with 0.00 Decibels. In other words with an instrument of 5,000 Ohms impedance the voltage impressed should place the pointer at the same part of the scale as would be the case if the same voltage with an instrument loop of only 600 Ohms *could be used without having the effect of noticeably shunting the impressed voltage and instrument current.* This is so important that it may well be stated in another way for emphasis. In the table the drop in voltage of 0.7746 is associated with 0.00 Decibels. This means that when the impressed voltage is 0.7746 the needle pointer should come to rest at a point marked with a zero, indicating no Dbm. It will also be noted that the calibration table assigns the same number of Dbm. to each impressed voltage as would be indicated if the instrument impedance could be 600 Ohms without introducing a distortion. The graphs and the table with this explanation should answer this inquiry, but if the matter is still not clear please write in again as it is very important. — ***Jay G. Mitchell.***

Illinois Bell Installs It's 3,000,000th Telephone

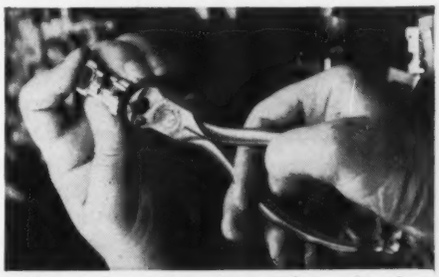
THE 3,000,000TH TELEPHONE served by the Illinois Bell Telephone Co. was installed Friday afternoon, March 11, in the Chicago home of Mr. and Mrs. William G. Caples. In ceremonies attending the installation, Illinois Bell President William V. Kahler called the Illinois Commerce Commission Chairman, George Perrine, from the 3,000,000th telephone, and Mrs. Caples called a friend in New York.

An extension telephone, the 3,000,000th set is a "hands free" or distant talking unit. For the ceremonies, Illinois Bell installed similar telephones in the offices of the managing editors of the four Chicago daily newspapers, so that reporters could telephone in their stories in what was believed to be the first news report from one "hands free" telephone to another.

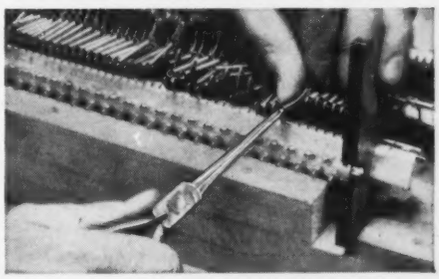
"UTICA® PLIERS have given us convincing evidence of HIGH QUALITY"

say production engineers at Smith-Corona Inc.

"In manufacturing a quality typewriter we need durability, dependability and accuracy in our hand tools, and that is what we get from Utica," they add.



A precut stepping dog carrier spring is trimmed to size by UTICA® No. 65 nippers.



A very popular tool at Smith-Corona is the UTICA® No. 777 needle nose pliers.

Bell crank link is snapped to key lever by UTICA® No. B224 duck bill pliers.

Smith-Corona's new Eighty-Eight secretarial office typewriter. UTICA TOOLS® have an essential part in producing this fine instrument.

Your industrial distributor has UTICA TOOLS® or can get them for you.

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Part One—

A Practical Guide For Training Traffic Employes

By RUTH E. RICHARDS

WITH PART ONE of "A Practical Guide For Training Traffic Employes," Miss Richards begins a discussion of training an operator to become a good supervisor. In this and subsequent installments Miss Richards will present basic training principles and lesson outlines designed to provide you with reference material upon which to base your operator-training program.

"Teaching is not filling a bucket — it is lighting a lamp."

IN SONG AND story the lamplighter theme has been used effectively throughout the years for it carries a sense of warmth and glow from the past. Not that we of this day actually ever knew the lamplighter period, but there seems to be an air of romanticism connected with it that appeals to most of us.

We who serve as supervisors and as such — teachers — might well adopt for ourselves the motto of the Christophers, *"if everyone lit just one little candle, what a bright world this would be."*

To each one who teaches, there comes — perhaps too infrequently — that moment of deep satisfaction when she knows that the student has somehow "come alive" and is taking in the knowledge that the teacher would impart; another candle glows.

The purpose of training (the result of teaching) is to develop skill, to retain it and to increase it. It follows then that training is not just a prescribed course, but a continuing process. We generally assume that those who would train others must be experts in the skill they wish to develop in others. But knowledge alone does not make a good teacher.

It has been said that the best athletes often fail as coaches and that the finest artists may not be good instructors. How to teach, then, becomes the first consideration in setting up a training course.

The rules for effective teaching may be narrowed down to four: —

(1) Explanation — tell how and why.

(2) Demonstration — do the thing yourself.

(3) Application — let the learner do it (practice).

(4) Discussion — check frequently — talk freely.

We are told that all learning is based upon association of ideas, the unknown related to the known. A new employe who has never before seen a switchboard, but who is completely familiar with the use of a telephone, can readily associate the line lamp signal on the board with the lifting of a telephone receiver — *"why it is like pressing a light switch."* Her knowledge of tele-

phone numbers from the user's viewpoint is easily transferred and enlarged to include understanding of how a line number is determined on a switchboard.

In order to teach effectively we must have attention to the task to be learned, for learning depends upon impressions, the connection of new ideas to past experience. These impressions must be repeated often and be recent if they are to be retained. Time enough must be taken to insure that the student understands what you would have her learn. If the idea is made clear enough and impressed deep enough in the first place, there will be less need to repeat and correct later.

On the part of the instructor, enthusiasm for what she is teaching is essential, for without that vital spark, interest cannot be kindled.

Twelve Suggestions For Those Who Teach

(1) Start with the known — lead into the unknown.

(2) Teach the simple first — go on to the complicated. (This builds confidence in the student.)

(3) Keep your explanations to the point. Use illustrations (word pictures), whenever possible to make the meaning clearer. (Relate the illustrations to the learner's interests if known.)

(4) Know the subject yourself. (A stimulating teacher will know MORE than just the part she is teaching.)

(5) Try to have undivided attention. (Distracting side activities should be avoided whenever possible.)

(6) Sell your subject — make the learner WANT to know. "Teaching is not filling a bucket, it is lighting a lamp."

(7) Demonstrate by doing CORRECTLY and exactly what the student will later be required to do. Explain why the method shown is correct and be sure that every detail is understood. Give a reason for each step, it adds interest to the learning.

(8) Encourage questions and discussion.

(9) Follow demonstrations and explanations with a "play-back." Give the student the opportunity to demonstrate the operation as though she were teaching you.

(10) Remember that emotions are very important in learning. Be very careful never to laugh at mistakes; sarcasm or ridicule have no place in teaching. Honest praise is the greatest stimulus to good work.

(11) A supervisor-instructor is responsible not only for what the student learns but what she does with what she knows. That is a test of the quality of the teaching. Check occasionally to see how well information is retained and used.

(12) Set a good example. Remember that a student is more likely to imitate the teacher than follow her teaching.

Central Office Training

IN OFFERING material which will be useful as a guide in training central office supervisors, our purpose is to present the basic principles and lesson outlines in simple practical terms. The outlines are intended to assist Traffic employes — Chief Operators — to meet the training problems which are ever present in an office, by providing reference material upon which to base a tailored-to-fit training course.

Since no two offices present exactly the same problems, due to equipment differences, experience levels, job requirements, etc., any training outline for supervisory personnel must meet the demands of that office. It is our belief that this material, adapted to individual office needs, can improve both service and morale in any office.

The Supervisor's Job

"A supervisor is a person having control of, or responsibility for, one or more workers and the jobs they do."

IN GENERAL, a central office supervisor's job consists of two classes of supervision: management and training. Under the management phase of her work comes floor work, direction of traffic and assisting operators to do their work.

In the smaller office the training of a supervisor is generally a "learn by doing" process with the Chief Operator directing her work. Quite often she will be an understudy to the Chief Operator and will serve as a replacement when the Chief Operator is not on duty. This supervisor may have learned some management techniques by "being in charge" during the evening or other periods when on duty as an operator, but a planned program of training will increase her efficiency and self assurance immeasurably.

In such offices, as well as in many larger ones, clerical routines are part of the management phase of the job and training in this work is a necessary part of the development of a supervisor. But whether the office be "small, medium or large," the supervisor newly appointed or with experience, a planned program of items to be covered is a requirement for satisfactory training.

This fact stands out: A supervisor must be both a leader and a teacher. The ability to teach can be learned. Some suggestions for that part of supervision were offered in the first part of this article.

Leading is not an easy task, but it can be a very satisfying one. It requires effort to be a leader that people will like and respect. No one can be a *leader* unless there are those who will follow (any other kind of supervisor is just a boss, not truly a leader).

To be a leader means to set an example in attitudes, job knowledge, and methods of dealing with people.

One of the most important lessons that the leader-supervisor must learn is the art of being consistent. The supervisor who is easy one day and firm the next creates a feeling of uncertainty in her force and thus loses much of the spirit of unity which should exist in a group of employes working together.

The Training

THE ENTIRE plan for training supervisors is designed to develop: —

Job Knowledge or Know How: — Complete familiarity with the operator's work is essential as well as learning the procedures to be followed in handling referred calls and special requests.

Power of Observation:— In order to be of help to operators, the supervisor must be alert — ability to see what is needed must be developed before corrective action can be taken.

Ability to Appraise: — When a sit-

uation requiring attention is observed, the supervisor must decide what to do, how and when to do it. The situation may be in connection with an operator's work, or it may be related to floor activities encountered in the day-to-day job.

Proper Viewpoint in Understanding People: — When on the floor the supervisor is wholly engaged in dealing with people; operators, customers, or employes in her own or other offices. Of equal importance with what she does is how she does it. It is through friendly and helpful relationships that the supervisor will obtain the best results and the greatest satisfaction from her work.

Ability to Listen: — In dealing with others, the supervisor will find that she must be a good listener. For example, training is most effective when the operator is encouraged through discussion to arrive at the solution to her difficulty rather than to be told what to do. It is important also that the supervisor be attentive to, and take prompt action in connection with requests, questions and inquiries from operators.

Ease and Naturalness in Speaking: — In giving training, offering commendations, answering questions, and directing the work of operators, it is necessary for the supervisor not only to know what to say but also how best to say it. As long as she approaches the job with an attitude of sincere helpfulness, the development of this accomplishment normally comes easily.

Ability to Instruct: — This involves not only planned instruction such as in the initial training of operators, but the training requirements encountered while working on the floor. The supervisor should be continually alert for better ways to present her training instructions so that they will be readily understood and lasting.

Lesson number one of a supervisor's training will be largely a discussion of the responsibilities and requirements of the job. This discussion should outline briefly the activities indicated in *Exhibit No.* 1. Any operator chosen for training will be casually aware of these activities since they have been going on about her as she performed her operating job, but they take on added importance when viewed from the floor or the Chief Operator's desk.

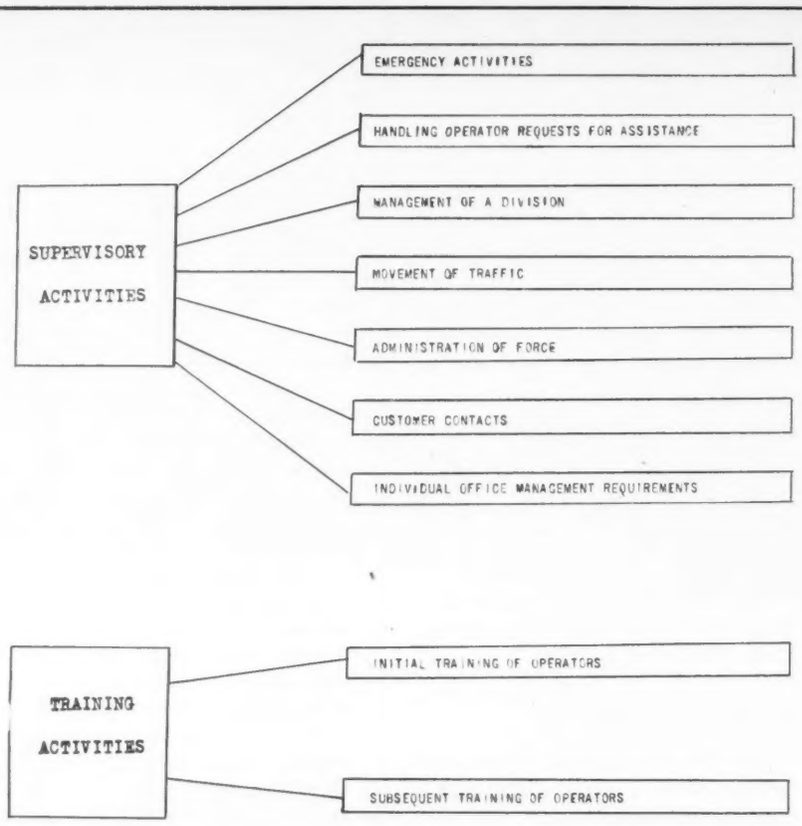


EXHIBIT ONE

Each of the general headings indicated as job activities on *Exhibit No.* 1 will be expanded to cover all of the items of that class. For example:

In the smaller office one of the first items to cover is the action to be taken when a condition occurs that would be classified under the heading "Emergency." Emergency activities may be subdivided thus:

(1) Action necessary in case of a *Central Office Emergency* such as:
   (a) Ringing or lighting power failure.
   (b) Large scale equipment failure.
   (c) Employe illness or accident.
   (d) Other emergency conditions.

   Note: Use of central office fire fighting equipment may be covered at this time if required.

(2) Action necessary in case of a *Public Emergency* such as:
   (a) Fire calls.
   (b) Police calls.
   (c) Storm damage — endangering lives.

   (In resort areas — location of nearest pulmotor and official to be notified.)
   (d) Other emergency conditions.

In concluding this first lesson let us summarize briefly the method used to present the lesson:

(Of course first of all, there would have been preparation by the instructor.)

Dicussion of a supervisor's responsibilities.

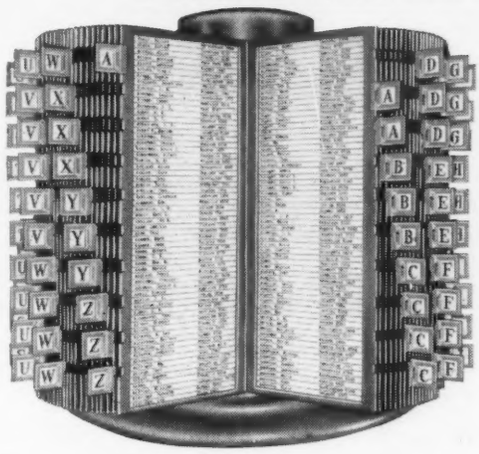
Explanation and demonstration of the features of a supervisor's headset — (if this equipment is used in your office).

Explanation of any records kept in connection with emergency calls — demonstration of use of a fire extinguisher.

Application by the student of the items discussed and checking by the instructor to be sure that the student has learned.

Future articles will cover in detail all of the activities outlined as necessary know-how for a supervisor. For example under "Customer Contacts" we will cover, Tone of Service, Handling Criticisms, Assisting Customers on calls on which difficulty is encountered, and other customer contacts. — To Be Continued.

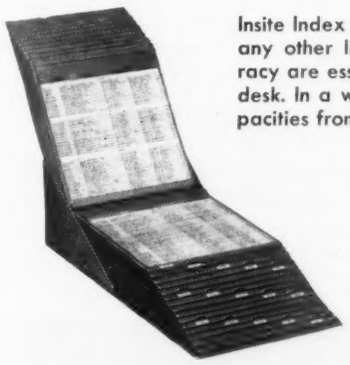
ACME VISIBLE FLEXOLINE equipment for CENTRALIZED INFORMATION RECORDS



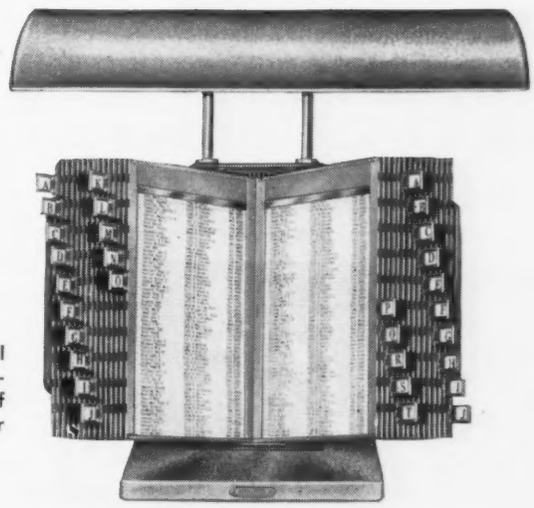
Speed up your central information switchboard records by making *all* of your telephone listings conveniently available to every information operator. With Acme FLEXOLINE Telephone Listing Equipment you have an up-to-the-minute record at all times, because changes are made in the record immediately upon installation or change in service.

Regardless of the type of switchboard you use or the number of subscribers you have, there is an Acme Time-Saving FLEXOLINE modern, hi-speed reference unit that will exactly meet your individual purpose.

Revolving stands provide compactness and great capacity—in single or double tier units they hold from 7,000 to 147,600 listings. May be used on desk, switchboard or mounted on pedestals.



Insite Index for small information lists or any other list where speed and accuracy are essential. Used on key shelf or desk. In a wide range of sizes and capacities from 350 to 2,500 listings.



Desk stands, as individual units with up to 32,800 listings capacity or in banks of any number of stands, for greater capacity.

Through the use of Acme FLEXOLINE Equipment, telephone companies have been able to render an improved service at a lower cost, speed up service and cut many corners in operation. The ease with which new names or listings are inserted in their correct places helps to keep lists always up-to-date, in many cases within a few minutes after the change has been completed.

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CROZET, VIRGINIA

District Offices and Representatives in Principal Cities

ACME VISIBLE RECORDS, INC., Telephone System Division, Crozet, Virginia

Please send us illustrated booklet

☐ #994 on Acme Multi-Card Bulletin Holders ☐ #982 on Acme Flexoline for Telephone Companies

☐ Have representative call. Date..... Time.....

☐ We are interested in Acme Visible equipment for ..... records.
KIND OF RECORD

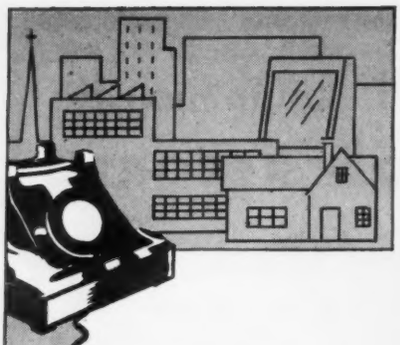
Company.....Attention.....

Address.....

City..... Zone..... State.....

Here are two informative booklets illustrating and describing various units which have been designed for, and use-tested by, telephone companies throughout the country.

Send for your copies today!



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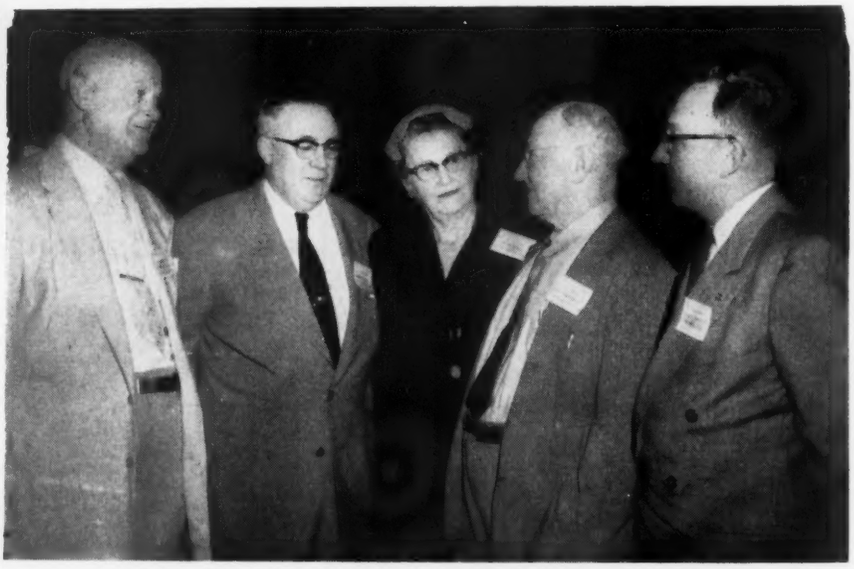
Officers of the Texas Telephone Association. Left to right, bottom row: PAM D. GRINSTEAD, treasurer; DON HUNSAKER, first vice-president; W. G. WINTERS, president. Top row: OSCAR BURTON, director and past president, and J. B. Haley, executive secretary. Missing, D. G. GARDNER, JR., second vice-president.

Texans Hold 50th Annual Convention: W. G. Winters Re-elected President

■ SAN ANTONIO, TEXAS . . . More than 300 members of the Texas Telephone Association gathered at San Antonio's Plaza Hotel, March 14-15 for a two-day convention.

The group, celebrating its 50th anniversary, honored Oscar Burton, vice-president, Gulf States Telephone Co., Tyler; Sam H. Shutt, retired, former vice-president and general manager of Texas Telephone Co., Sherman; D. T. Strickland, vice-president and general manager of the Southwestern States Telephone Co., Brownwood; and Roy Autry, former president of General Telephone Co. of the Southwest, Dallas. All are past

Please Turn To Page 92



One of the oldest "Old Timers" at the Texas Convention, C. A. SHOCK (second from right) celebrated his 80th birthday during the first day of the Texas Convention. He and a number of other oldsters were awarded "Citations for Meritorious Service" at the annual banquet. From left to right, R. H. BURFEIND, Chicago, F. E. MESSCAR, president of the Oklahoma Telephone Association, MRS. C. A. SHOCK, and MR. SHOCK, Corpus Christi, and Mr. Shocks' son, F. K. SHOCK, Sherman, Texas.

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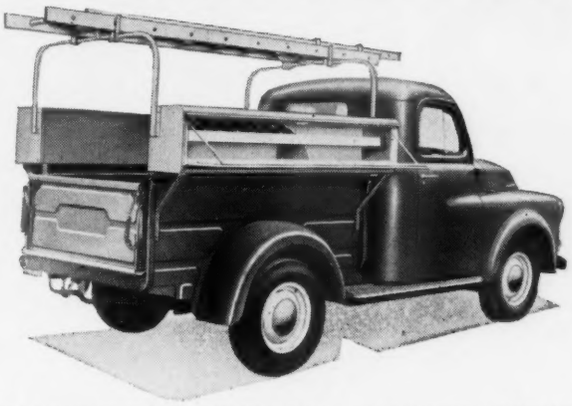

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Quickly...and at low cost...you can mount these All-Steel, Welded Side Boxes on ANY MAKE OR MODEL of pick-up truck. Keep tools and equipment dry, safe, organized.

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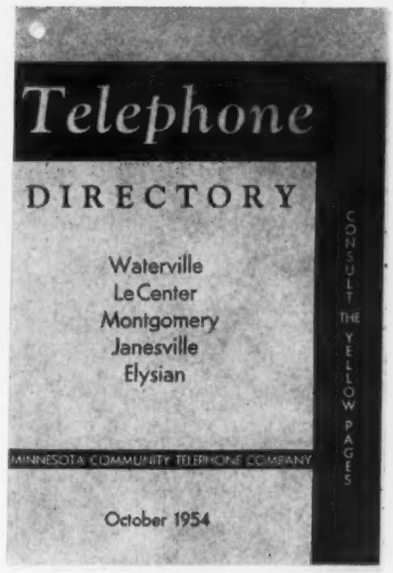

Minnesota Community Telephone Company directory printed by

R. R. DONNELLEY & SONS COMPANY

350 East Twenty-second Street, Chicago 16

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By ARTHUR LEMUEL ALBERT
Professor of Communication
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Second Edition, 531 pages, 6 x 9
363 illustrations, $7.00

Written expressly for radio men, telegraphers, telephone engineers, this book gives fundamentals of electrical engineering accurately, simply, from the point of view of the communication industry. It gives you fundamentals of electronics . . . explains direct current, conductors, resistors, and insulators; discusses such topics as the magnetic field, sources of electric energy, induction, motor and generator action, magnetic hysteresis, eddy currents, and many others. You will find sound, basic information that will help you know and understand electricity.

The Second Edition includes new AIEE and IRE standards and current usage. It gives additional emphasis to radio fundamentals, more useful to those interested in electronic, radio, and television fields.

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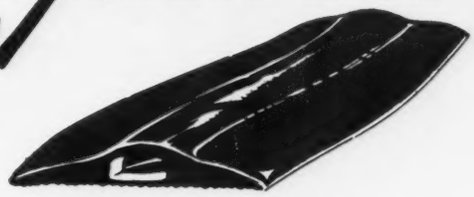

It's the new rubber floor duct that solves over-floor wiring problems quickly and effectively, with adequate protection from sweepers, mops and equipment on casters. Installation is easy and permanent. You just fasten Flexiduct in place with its own special cement. There's no drilling or necessity to use screws and fasteners. Flexiducts' flexibility allows it to adhere evenly and securely to all types of floor surfaces and it is adaptable for installations ranging from 2 conductors to 25 pair switchboard cables. Write for complete information regarding Flexiduct and your wiring problem today.

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COMBINATION TRUCKS
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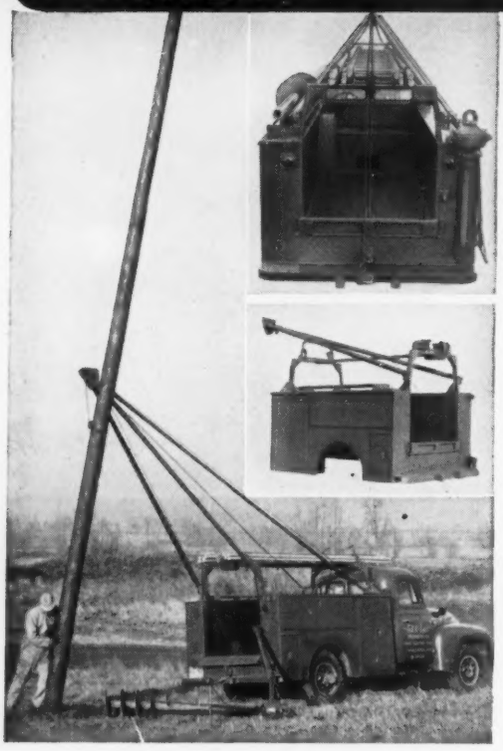

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IT'S A COMPLETE PACKAGE, tailored for your make and model of truck. Derrick, winch and digger drive are all assembled to the body, ready for your truck chassis. Easily mounted in a few hours by your local mechanic.

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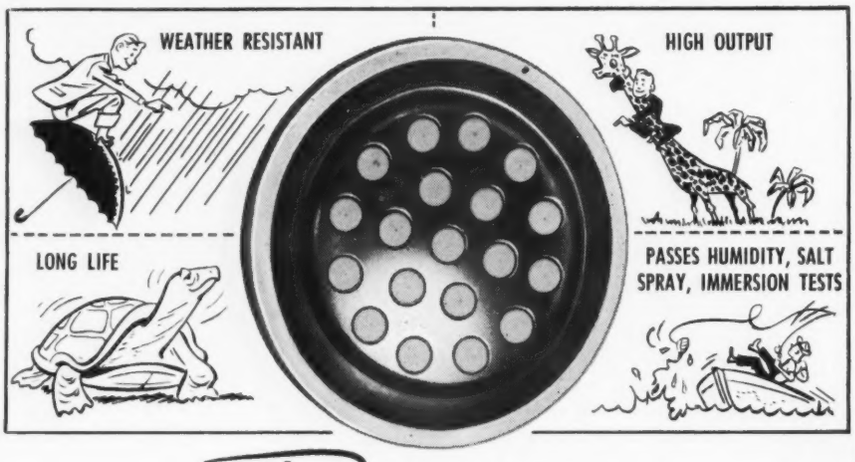

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Completely sealed with chemically inert materials, against all outside contamination; results in a minimum loss in output after extensive usage...Weather resistant; made to meet or exceed usual government specifications regarding humidity, salt spray and immersion... Electrically and mechanically interchangeable with all F-1 type transmitters.

WRITE FOR DETAILED DATA SHEETS

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"Who's congratulating who?" W. G. WINTERS, Houston, president, and DON HUNSAKER, San Angelo, first vice president of the Texas Telephone Association.

presidents of the association.

Mrs. L. S. Gardner, of Austin, whose husband was president of the association at the time of his death in 1934, also was honored.

Among the speakers addressing the convention were Dr. A. Q. Sartain, professor of psychology and chairman of the department of personnel administration of the Southern Methodist University School of Business Administration, Dallas; Leon Roberts, director of information of the United States Independent Telephone Assn., Washington, D. C.; Henry M. Beissner, vice-president of Morney, Beissner and Co., Houston; Walter L. Prehn, general manager of Southwestern Bell Telephone Co., Dallas; Ralph Meyers, vice-president of International Creosoting and Construction Co., Galveston; W. G. Winters, Texas Association president; and J. B. Haley, executive secretary of the association.

Dr. George Mauze, president of the San Antonio Council of Churches, gave the opening invocation and a

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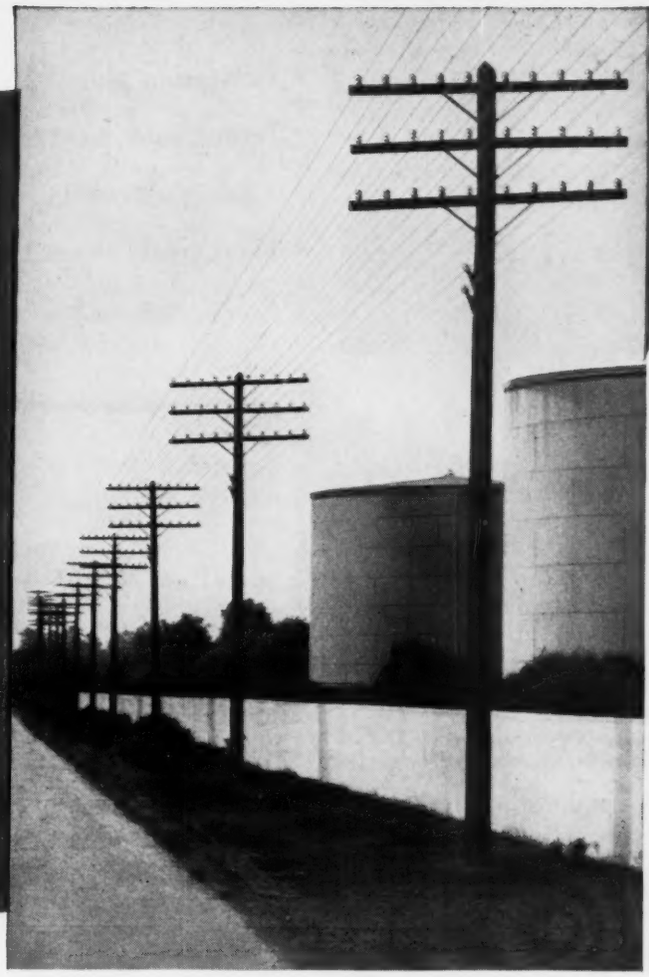
Two "Old Timers" reminiscing during Texas Convention intermission. AL ROBB of Electra and SAM SHUTT of Sherman, Texas. Al is a current Director and Sam an ex-president of the Association.

IT'S NOT JUST CREOSOTE THAT MAKES AMCRECO POLES LAST LONGER



It's creosote oil plus Amcreco pressure treatment that gives longer life and greater dependability to Amcreco poles. The result of almost fifty years of continuous research and development, Amcreco pressure treatment forces protective creosote into the cells of the wood—armors the pole against insects and fungi. For you this means poles that last longer with greater strength throughout the life of the pole—longer line life with lower maintenance costs. Any of our conveniently located sales offices will be pleased to go over your next requirements with you.

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- **Protection plus**
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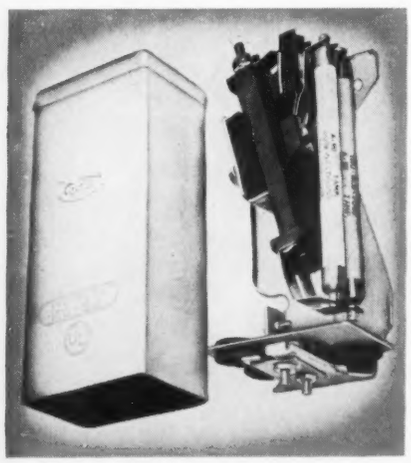
by C. J. Reynolds, Stromberg-Carlson

The few dollars you spend on *reliable* equipment today will be repaid a hundredfold in lower maintenance costs for years to come. Protect your investment with the double guarantee offered by Stromberg-Carlson. First, leading manufacturers build this equipment, and guarantee it. Second, because we recommend and sell this equipment to the telephone industry, we *also* guarantee its performance!

The Cook RO-9U sub-station protector

Protection plus—that's Cook Electric Company's type RO-9U sub-station protector.



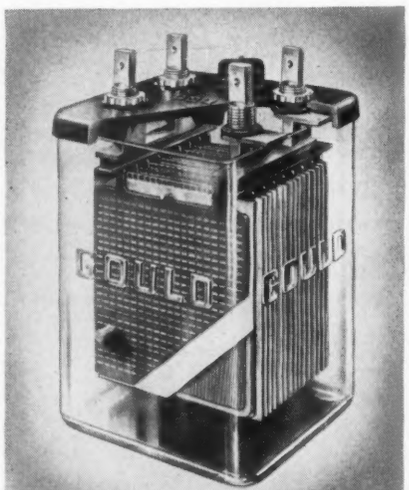
The most highly protective sub-station protector available.

This rugged unit consists of a heavy Bakelite base, two 7-amp. ceramic fuses, two famous Tru-Gap dischargers and two secondary dischargers which will ground a fault current when the fuses blow. These are all mounted on a sturdy steel bracket and covered with a heavy gauge, weathertight, zinc hood.

For the best in fused sub-station protectors, order the RO-9U.

Insure your power supply

Because Planté batteries practically last forever... providing stand-by power that never fails... they're the best operating insurance you can buy. In switchgear, signal and alarm systems, or emergency light and power applications, these lead batteries have rolled up amazing performance records . . . are famous for their ability to deliver a powerful surge or a steady flow of current the instant it's needed. Make sure you're in operation . . . always. Choose Gould Planté.



A sure, dependable supply of power when you need it. That, briefly, is the story of this Gould Planté battery.

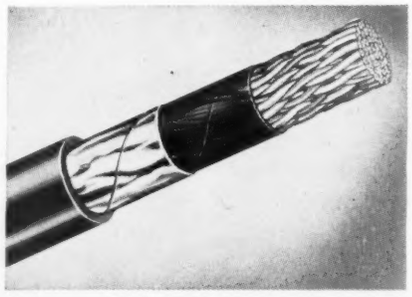
Cable has polyethylene sheath for extra-long life

In outside cable installations, you can side-step the ravages of weather, sunlight and temperature, saving yourself many dollars and hours in maintenance.

To do this, use the protection of the polyethylene sheath on Telecable®. Telecable exchange area cable for aerial and duct use has polyethylene insulation **and** polyethylene sheath. No other thermoplastic material has given as good assurance of aerial cable sheath life expectancy as has polyethylene.

Specially treated to resist sunlight, the Telecable sheath has maximum chemical resistance, is not subject to environmental cracking.

Extremely light in weight, tough, yet flexible, it resists the stresses encountered during installation. You can expect top performance of Telecable for upwards of 20 or 25 years.



Telecable exchange area cable has outstanding weather resistance and transmission qualities.

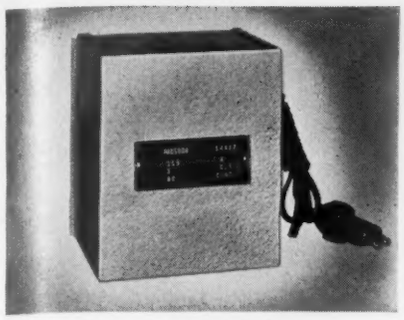
Available in No. 24, No. 22 and No. 19 A.W.G. in sizes up to and including 202 pairs. For further information, consult your Stromberg-Carlson representative.

Battery eliminator gives you DC, even if your AC source fails!

If you want 24-hour guaranteed direct current, you can get it with the Electrox Battery Eliminator.

This unit gives you the assurance and security that, no matter what might temporarily interrupt your alternating current source, you will still get a steady flow of direct current.

This battery eliminator, the PA-05004 type illustrated, is designed specifically for use on the operator's



Electrox Battery Eliminator has built-in Power-off Relay.

circuit on magnet switchboards.

When operating from 110-volt, 60-cycle lighting circuit, it delivers a constant, humless direct current. If the alternating current supply fails, a built-in Power-off Relay automatically transfers the operator's circuit to stand-by dry cells.

Other models available for Lamp Signal (PBX) and Automatic (PAX) systems. Products of Rectifier Division, Schauer Manufacturing Corp.

What's cooking?

Cross-arms! You get longer life out of them after they've been preservative treated in oil.

One hour at 220°F. in Penta-oil solution is typical pressure treatment for fir arms. Up to 2½ hours on pine. But it adds years to the life of that arm for only pennies additional cost to you.

Or maybe you prefer creosote—pressure or dip treated. American Cross-Arm, Inc. will provide your needs.

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(Continued from page 92)

welcoming address was delivered by Tom L. Powell, president of the San Antonio Chamber of Commerce and general manager of the Plaza Hotel.

Three conferences were held during the convention. The Commercial Conference featured a discussion of "Sales Are Necessary," presented by: E. H. Utzman, Brownwood; W. H. Thomson, San Angelo; and L. B. Dunlop, Dallas. Plant Conference speakers were: W. C. Gaylor and E. E. Karlsson, both from San Angelo. Traffic Conference speakers were: Mrs. Sadine Hanna, Killeen; C. V. Fleming, Robstown; and Mrs. Winnie B. Burnett, Brownwood.

All officers of the Texas Telephone Association were reelected at the 50th anniversary convention. W. G. Winters, of Houston, was reelected president, while Don Hunsaker of the General Telephone Co. of the Southwest and D. G. Garner, Jr., of the Nocona Telephone Co., were renamed first and second vice presidents. Pam Grinsted, of Kerrville, was reelected treasurer, and J. B. Haley was reelected executive secretary.

Directors of the Texas Telephone Association are: W. S. Bain, Mid-Texas Telephone Co., San Antonio; Fabian Bearden, Home Tel. & Elec. Co., Baird; Morris S. Burton, Gulf States Tel. Co., Tyler; J. T. Chambers, Tenaha Telephone Exchange, Tenaha; Marion A. Clay, Lufkin Telephone Exchange, Lufkin; D. H. Comparette, Jr., Kerrville Telephone Co., Kerrville; E. H. Danner, Texas Telephone Company, Sherman; Cliff R. Dowd, Hawkins Telephone Co., Hawkins; D. G. Gardner, Jr., Nocona Telephone Co., Nocona; Charles Hendrix, Brazoria Telephone Co., Brazoria; Don Hunsaker, General Telephone Co. of the S. W., San Angelo; Geo. M. Johnson, Coleman County Tel. Coop., Inc., Santa Anna; A. L. Robb, Electra Telephone Co., Electra; T. A. Singer, West Texas Telephone Co., Dimmitt; Guy Smelser, Northeast Texas Tel. Co., Bogata; Ben Smith, Southwestern Bell Telephone Co., Dallas; Ralph Sparks, Pecos & N. W. Telephone Co., Pecos; Lucian W. Spencer, North Plains

RALPH E. MEYERS, vice-president, International Creosoting & Construction Co., Galveston, Texas (dark suit) addressed the Texas Convention on "Poles Their Preservation — and Line Service" . . . HARRY C. WYCHE, sales department, handled picture slides during Mr. Meyer's presentation.

TELEPHONE GENERAL STORE: — A display by the Texas Commercial Committee illustrating the theme "Sales Are Necessary," attracted considerable attention at the Texas Convention.

Telephone Co., Dumas; D. T. Strickland, Southwestern States Tel. Co., Brownwood; W. G. Winters, Hull Telephone Company, Houston; W. G. Wright, General Telephone Co. of the S.W., San Angelo; and Oscar Burton, director ex-officio, Gulf States Tel. Co., Tyler.

Eldon Eckles Heads Minnesota Association

ST. PAUL, MINN. . . . Eldon Eckles of Blue Earth, Minn., was chosen as new president of the Minnesota Telephone Association as the group closed its 46th annual convention at the Hotel St. Paul, February 16.

Mr. Eckles heads the Blue Earth Valley Telephone Co., and is a past director of the association. He succeeds Harold Bollinger of Waconia, who had been president for two years.

The directors also named H. James Boyd, manager of the Alexandria (Minn.) Telephone Co., as vice-president and reelected Keith Vogt, St. Paul, as secretary-treasurer.

Earlier, the 700 delegates to the 3-day convention, after approving incorporation of the association and a change in its name to Minnesota Telephone Association, Inc., voted by written ballot for a new slate of directors from a field of about 35 candidates.

They voted another term for 11 of the present directors, and selected four new directors to the board. The new directors are Wayne Caldwell of Clarkfield, elected for a one-year term; Ben H. Hohman of Pelican Rapids, two years; and Charles H. Joy, Fairmont; and Walden Piehn, Harmony, elected for three-year terms

Reelected were the following:

One-year terms: — H. James Boyd, Alexandria; Eldon Eckles, Blue Earth; Kenneth A. Johnson, Bricelyn, and Carl M. Ostby, Erskine; two-year terms: — Charles R. Cashel, Worthington; Elnathan C. Gates, Minneapolis, and C. F. Marvin, Zumbrota; three-year terms: — Harold R. Bollinger, Waconia; P. M. Ferguson, Jr., Mankato and Vic Martinsen, Grand Meadow.

Four Minnesotans with a combined total of over 216 years' association with Minnesota's Independent telephone industry were honored at a special recognition luncheon on February 14.

G. E. ROHE (l.), GEORGE SUMMERSCALES (center) and GEORGE HAMBURGER attended recent Minnesota convention.

The four honored guests were: T. C. Macoubrey, A. N. Fancher and E. L. Klingel of St. Paul, and Jay Houghtaling of Minneapolis. A fifth person who was to have been honored, J. C. Crowley, Jr., St. Paul, died February 6 after a month's illness. He served as secretary-treasurer of the association for 30 years until his retirement in 1952.

Mr. Macoubrey heads a St. Paul accounting firm which specializes in telephone work. Mr. Fancher is supervisor of telephones for the Minnesota Railroad & Warehouse Commission. Mr. Klingel operates a telephone repair and supply business, and Mr. Houghtaling is a retired sales engineer for Kellogg Switchboard & Supply Co.

Lead-off speaker for the convention was Harold W. Bollinger, president of the association and vice-president and general manager of the Pioneer Telephone System.

Others on the speaking program included E. C. Weitzell, chief of the telephone operations and loans division, Rural Electrification Administration; Ray W. Smith, president of Telephone Engineer Publishing Corp., Chicago; R. Karl Honaman, director of publications, Bell Telephone Laboratories, New York; L. D. Densmore, vice president and general manager, Central Telephone Co., Lincoln, Neb.; V. F. Bellows, general superintendent for the Hunt telephone properties, Blair, Neb.; and Waldo E. Piehn, president, Harmony (Minn.) Telephone Co.

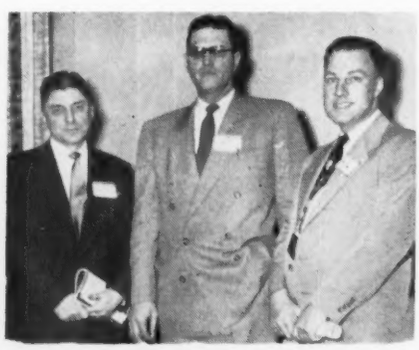
At the final convention session Minnesota telephone industry leaders passed resolutions which put them officially on record against any increases in federal minimum wages or state gross earnings taxes.

Other approved resolutions urged retention of the 750-telephone station exemption in the Fair Labor Standards act and called on Congress to remove all federal excise taxes from telephone service.

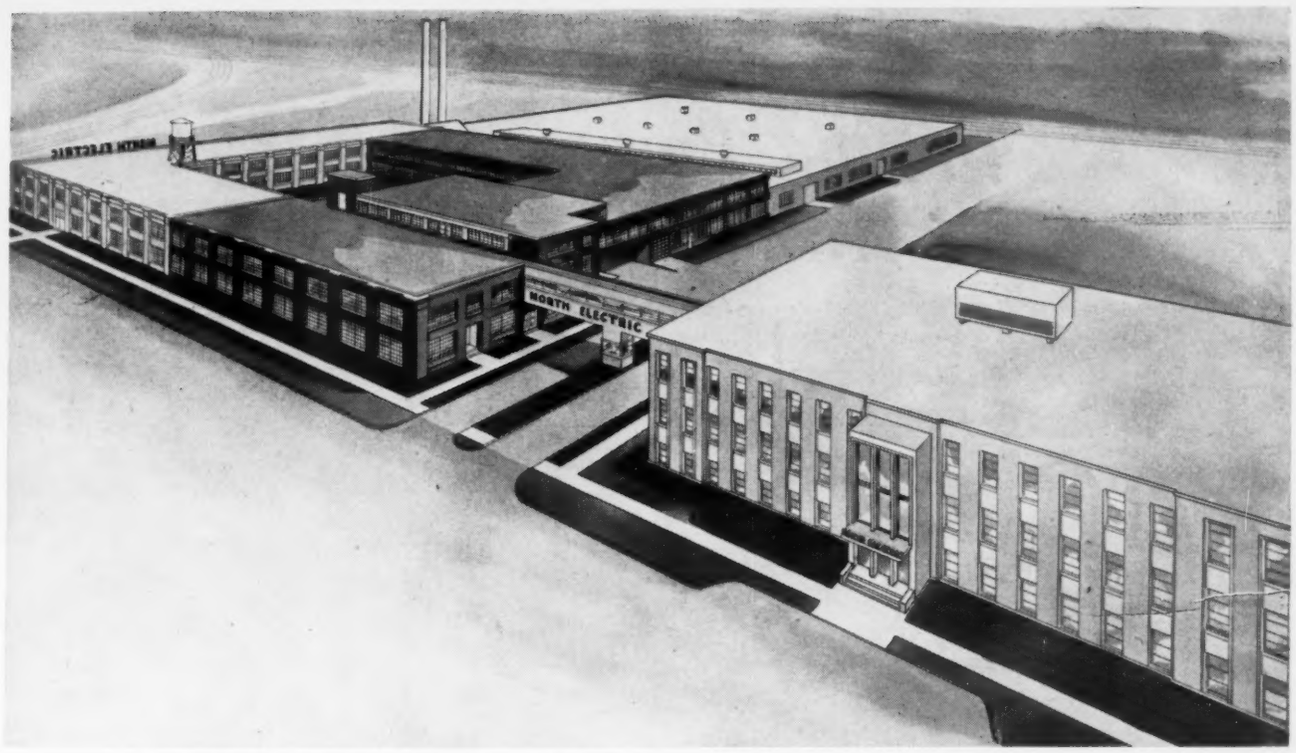
North Electric Announces New Building Program

AN IMPORTANT ADDITION to the industrial capacity of The North Electric Manufacturing Co., Galion, Ohio, was announced last month by Hans

Members of this Minnesota convention trio are (l. to r.): — LOUIS WAGNER, V. C. BURCHITT, and BARNEY RIVERS.



FLAYTON FRANCIS (l), U. R. HUFNAGLE, and BILL SALTMARSH, pause for Minnesota convention photographer.



North Electric Manufacturing Co. will construct a 55,000 square foot addition to its present manufacturing building

Kraepelien, president. The Executive Committee of the North Board of Directors has approved plans for another new building program that will double the present manufacturing capacity of the company's main plant.

Mr. Kraepelien said construction will start immediately on a 55,000 square foot addition to the present manufacturing building. A new, three-story administration building on the same property is nearly completed and will be occupied within a month.

North, one of the oldest and largest manufacturers of automatic switching equipment for the telephone industry originated the first relay type automatic switching system in this country. Growth in this field has been gradual but steady. A division devoted to specialized industrial electronic and electro-mechanical components was added a few years ago, and it also is growing steadily. Because of increasing demands of the two divisions, the company found it necessary in recent years to occupy office and manufacturing space in scattered buildings throughout Galion.

"There are two primary purposes behind the construction of this addition," Mr. Kraepelien said. "One is to improve the efficiency of our manufacturing by relieving overcrowded conditions. The second is to provide for several newly developed products in both the telephone and industrial divisions at North. This diversification of products has been going on for several years, but we have not had the opportunity to expand our facilities in proportion to the growing requirements. In order that this diversification may continue we must have additional space."

The newest expansion is being made in three steps, Mr. Kraepelien said. First is to move administrative, engineering and office personnel into the new administration building. This includes relocating the Development Engineering Laboratory, and tearing down the frame structure now used by the Laboratory. Next is to remodel the present building, now housing the main office, into manufacturing space. Third step will be completion of the new manufacturing additions, and complete rearrangement of the plant layout.

The section of the newest construction adjoining the old main office will match the present building in style, so that an architectural continuity will be preserved. The balance of the new building will be of modern "all window" factory design providing maximum passage of daylight, and will be two stories in height. The completed manufacturing building will represent a quadrangle, with a center court devoted to parking, plus the recently occupied one story bays at the east end. An enclosed bridge will connect the office building to the manufacturing group.

C. L. Lineberger Joins Suttle Equipment Co.

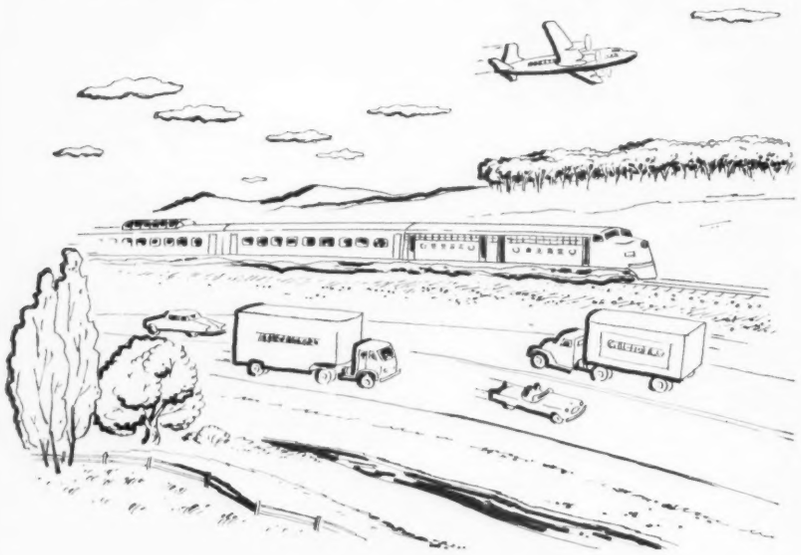
SUTTLE EQUIPMENT Co.'s president, LeRoy T. Carlson, has announced that C. L. (Chuck) Lineberger, former engineering consultant, has joined the Suttle company as sales manager, Manufacturing Division. His office is located at 135 S. LaSalle St., Chicago, Ill. Suttle's plant is in Lawrenceville, Ill., and is engaged in the manufacture and distribution of telephone equipment, agricultural testing and weighing products, and laboratory instruments.

C. L. LINEBERGER

Mr. Lineberger was graduated from Northwestern University with a background in engineering and business administration. His previous associations have been with U. S. Steel Corp., International Harvester Co., a management engineering firm, and as assistant to the president of a laboratory supply company.

He learned telephone "basics" under fire as a Communications Offi-

Your Nearest Kellogg Shipping Point is Never Far Away!



• Kellogg's six conveniently located warehouses and more than 100 supplier distribution points throughout the United States assure you the fastest, and most economical delivery of guaranteed, factory-tested line supplies.

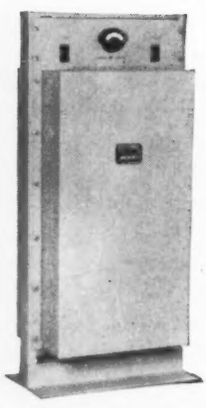
KELLOGG — DIVISION OF IT&T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

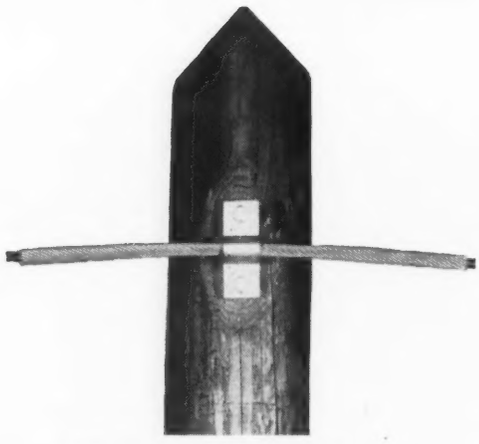
A Division of International Telephone and Telegraph Corporation

Sales Offices: 79 West Monroe Street, Chicago 3, Illinois

KELLOGG



Automatic Constant Voltage Charger—operates without moving parts. Compensates for changes in input voltage and load. Single-Phase Flotrol in the 24 and 48 volt types are available in range of sizes from 1 to 24 amperes. LORAIN PRODUCTS CORP.



PLP Tangent Support Line Guards (shown here) for self-supporting telephone cable protect while firmly holding cable in an elongated grip in which the unit pressure is small because of large area of gripping surface. PREFORMED LINE PRODUCTS CO.

Peak Performance at Lowest Cost! Get better voice and high frequency transmission with COPPERWELD STEEL CO.'s Line Wire. It's non-rusting, light in weight, easy to string. Permits safer long spans with savings in initial construction and upkeep.

Write, Wire or 'Phone Your Next Order For Supplies To . . .

KELLOGG Branch Warehouses and Offices:

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Prospect 5191

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San Francisco 3, California
Market 1-6011

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Mansfield, Ohio
Mansfield 7-2816

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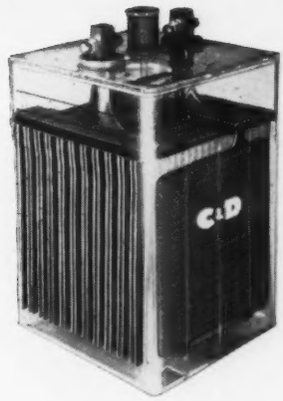
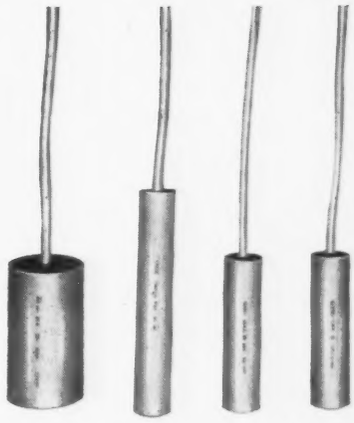
Portland 5, Oregon



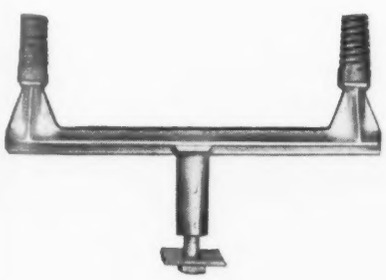
Extra-Long Life! — The suspended and supported plate construction is an exclusive feature of C&D BATTERIES. Choose C&D's PlastiCal (lead-calcium grids) for life expectancy of 25 years . . . for 14 years expectancy, specify PlastiCell (high tensile lead alloy grids).

• • •



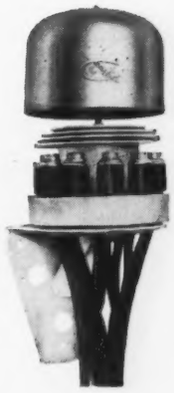
Application of Loading Coils on telephone circuits, reduces loss to 1/3 or 1/4 the non-loaded value — coils shown are used on a 2-wire telephone circuit in non-quadded paper insulated or plastic cable. COMMUNICATION EQUIP. & ENGR.'G CO.

for Line Supplies



Help Eliminate Frequent Replacements with installation of Aluminum Transposition Brackets. Made of a new aluminum alloy, completely assembled and ready to install on crossarms —saving cost of assembly. PERMANENT MOLD FOUNDRY, INC.

Simple and Effective! The quick, easy way to dry splices in lead covered cable is to sprinkle Drierite Dessicant granules in among the conductors. This W. A. HAMMOND DRIERITE CO. product will not harm the sheath, conductors ore insulation.



5-Circuit Power Cross Protector provides a single assembly for 5 circuits to be mounted on a 10-pin arm requiring only a single ground wire. Easy to install—use only three mounting screws. Made by COOK ELECTRIC COMPANY.

(Continued from page 97)

cer in the European Theater in World War II, where he also served as an intelligence officer and town major. He is past national president of the National Society for Business Budgeting.

Suttle Equipment Co. has developed additional product lines in the field of telephony, agricultural testing and weighing equipment and scientific instruments for control purposes. In response to requests for development of new items for the telephone field, Suttle has acquired additional manufacturing equipment, both general and specialized in nature.

Geo. Zimmerman Joins Holtzer-Cabot Div'n.

THE HOLTZER-CABOT Telephone Equipment Division of National Pneumatic Co., Inc., Boston, has announced the appointment of George C. Zimmerman as power equipment development engineer. His duties will include customer contact and field survey work in developing telephone power equipment.

Prior to joining the Holtzer-Cabot division, Mr. Zimmerman was employed by the Federal Telephone & Radio Co., in the apparatus design and equipment engineering departments.

George Benson in New Assignment

MOPEDO PRODUCTS, INC., 1 West 58 St., New York City, a newly-formed affiliate of Krafco Container Corp., has announced the appointment of George Benson as vice president and general manager.

Mr. Benson, who will organize the Mopedo distributing program, was for more than 20 years, until December 31, 1954, manager of Premax Products Division, Chisholm-Ryder was a member of the executive committee of the Associated Fishing Tackle Manufacturers, former chairman of the Antenna Section of the Radio Manufacturers Association and active in other trade and community projects. He continues to serve as a member of the Board of Directors of Chisholm-Ryder Co., Inc., and is a member of the Niagara Club and the Rotary Club of Niagara Falls, N. Y.

Koppers Company, Inc. Names New Chairman, President

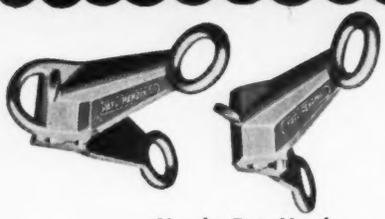
W. F. MUNNIKHUYSEN last month was elected chairman of the board and Fred C. Foy was named president and chief executive officer of Koppers Co., Inc., at a special meeting of the company's board of directors.

Elections of Mr. Munnikhuysen and Mr. Foy fill the vacancies created by the death last February 13 of General Brehon Somervell, who had been both chairman and president. General Somervell died unexpectedly in Florida where he had gone for a rest.

Mr. Munnikhuysen has been executive vice president of Koppers since 1950. Previously he had been vice president and general manager of the company's Wood Preserving Division. He first joined the company in 1916.

Mr. Foy, who joined Koppers in 1948, has been vice president and general manager of the company's Tar Products Division since 1950, and a member of the company's board of directors since last May.

How to Solve Your Cable Spinning Problems the Easy Way



Platform Clamps
Support splicer's platform from aerial cable —spun or otherwise. Won't slide on grade or damage cable. Bronze alloy.

Handline Block,
specially designed for spun cable, may be used on cable with any other kind of support. Clamps on strand. Won't slip on grade or damage cable. No wrench is needed. Bronze alloy.

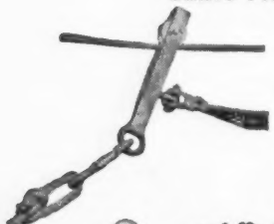
Single Eye Hooks
...for four supporting adjustable ropes of a splicer's platform. Cadmium-plated steel.

Double Eye Hooks
make splicer's platform readily adjustable ...by threading supporting ropes through double eye. Cadmium-plated steel.

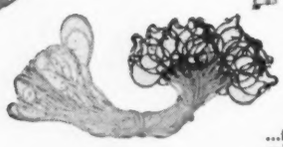
Lashing Wire Clamp
designed by Neale, holds spinning wire with positive action clamp when terminating at pole. Also keeps slack from running back in cable repairs. Bronze alloy with cadmium plated screw.

Soap Can & Brush
keeps pressure testing soap or paint in excellent condition. Cast aluminum for light weight. Tight-fitting cover serves as handle for brush. Container equipped with spring belt clip.

Cable Placing Ring Guide Roller
offers means of pulling cable in and takes down pull on tow line to truck. Cadmium plated steel with bronze bushing.



Cable Placing Shoe
is used ahead of spinner to raise cable from reel to strand in placing and spinning cable. Also used stationary at pole when placing with rings.



Steel Placing Rings
...for light cable. Slip rings onto cable at pole and attach to pulling line. Rings distribute themselves every five feet along span. Sets of 20, including 110 feet of rope attached.

LITTLE GIANT Slack Pullers

Here's a combination of great strength and very simple operation...to make difficult operations easy. Furnished with either slip handle (left) or ratchet (right). Moving parts cadmium plated.

Bronze Cable Placing Ring. Roller design eliminates sheath damage of all sizes of cable. Cast bronze body and bronze rollers.

CABLE SPINNING MANUAL
gives complete details on operation of Neale Cable Spinner with easy-to-follow service and maintenance instructions.

CABLE SPINNING
Equipment Company PHONE 2-7234
3100 TOPEKA AVE. TOPEKA, KANSAS

For the past six months he has been on special assignment to the president's office while retaining his duties in the Tar Products Division. He was also elected a member of the Executive Committee of the board of directors.

Members of the board also elected R. R. Holmes as vice president and general manager of the Tar Products Division, succeeding Mr. Foy. Mr. Holmes, who joined Koppers in 1923 has been a divisional vice president and assistant general manager of the division.

Kellogg Names Houdek General Laboratory Chief

JOSEPH F. HOUDEK, JR., who holds a number of patents on wire communications apparatus, has been named chief of the General Laboratory, Kellogg Switchboard & Supply Co., Chicago, a division of International Telephone & Telegraph Corp.

A 14-year Kellogg man, Mr. Houdek has served as section head of the company's Research Laboratory since 1951. Previous to that, he was supervisor of the Telephone Research & Development Group of the company. A graduate of The Lewis Institute of Chicago (now the Illinois Institute of Technology), Mr. Houdek has completed graduate work in Industrial Engineering and Management and allied fields at the University of Chicago and the Illinois Institute of Technology.

J. F. HOUDEK, JR.

He is chairman of the Communications Committee, Chicago Section of the American Institute of Electrical Engineers; a founder and Treasurer of the Chicago Acoustical and Audio Group; and holds membership in the Armed Forces Communications Association and the Physics Club of Chicago.

Previous to joining the Kellogg company, Mr. Houdek was affiliated with General Electric X-Ray Corp., and before that, with the Illinois Bell Telephone Co. He has also served as a consulting engineer.

He succeeds Dr. George H. Brodie to the post of Kellogg Laboratory chief. Dr. Brodie now is assistant technical director; Norman H. Saunders is technical director.

ACORN INSULATED WIRE

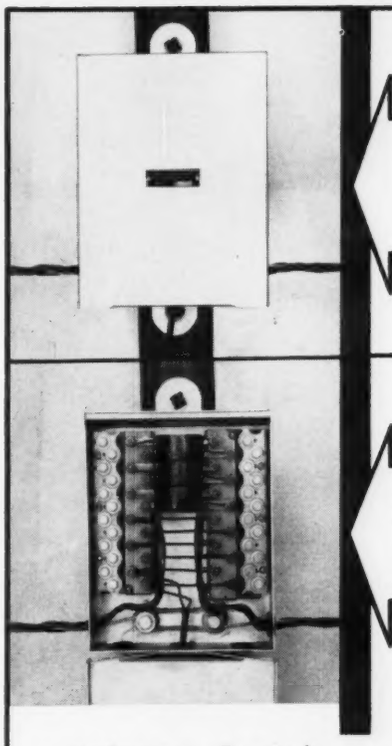
Quality WIRE for Every Telephone NEED

DROP WIRE
BRIDLE
SWITCHBOARD
TREE
GROUND
BURIED WIRE

INTERIOR
INSTRUMENT
POTHEAD
CABLE TERMINAL
FIXTURE
PLASTIC INSULATED

ACORN INSULATED WIRE CO., INC.
36 Freeman St., Pawtucket, Rhode Island
NORTH ELECTRIC CO., 501 S. Market St., Galion, Ohio.

Drop Wire—Bridle—Interior—Tree—Ground—Switchboard—Pothead—Cable Terminal—Instrument—Fixture—Buried Wire



HERE IS OUR TERMINAL LOADING CASE
Type 177

FOR

RURAL DISTRIBUTION CABLE

A cast aluminum combination terminal box and housing for loading coils. Designed to be used with the new rural distribution wire and available in 8 types to meet your requirements. Terminals are available with or without protectors and designed to accommodate loading coils of 88MH or 44MH inductance. Available through all telephone equipment suppliers.

COMMUNICATION EQUIPMENT & ENGINEERING CO.
5646 West Race Avenue Chicago 44, Illinois

Helping the Army call its shots

Depicted in action here is an M-33 fire control system . . . produced for the Army by Western Electric.

The M-33 system provides mechanical hands and electronic brains needed to track targets racing through space, to aim anti-aircraft guns so that shells are guided unerringly to points in the sky where invaders will be. It is based on radars and electronic computers. Many of the basic principles employed are the same as those used to guide dial telephone calls to the right number.

Here again is another achievement of telephone technology that is helping to keep Uncle Sam's defense strong!

Western Electric

MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

construction and maintenance DIGEST

- **Lightweight champ**
- **Stubbornest anchor**
- **Tops for spinning**
- **Die-hard battery**

Published every month to help you get the most out of your materials and supplies dollar

by C. J. Reynolds, Stromberg-Carlson

The few dollars you spend on *reliable* equipment today will be repaid a hundredfold in lower maintenance costs for years to come. Protect your investment with the double guarantee offered by Stromberg-Carlson. First, leading manufacturers build this equipment, and guarantee it. Second, because we recommend and sell this equipment to the telephone industry, we *also* guarantee its performance!

Here's easy-handling cable—Aerial, burial or tucked in a duct

You can cut installation and handling costs, save yourself a lot of time, with Ankoseal lightweight plastic cable.

Polyethylene insulation and special jacket compound of this cable give plenty of protection.

It has polyethylene insulation that gives you excellent moisture resistance and thereby eliminates the hazard of wet cable. Another advantage of polyethylene is its high dielectric strength, which means less lightning trouble.

And to give you an unbeatable protection from weather, the Ankoseal 454 jacket compound is used. This special formula not only shrugs off climatic conditions, but also resists corrosion, electrolysis and vibration cracking.

Ankoseal lightweight plastic cable is made for aerial (both messenger and self-supported), for duct and for direct burial installations.

Standard paired, quadded and composite constructions are available.

Your Stromberg-Carlson representative is prepared to fill immediate needs with this easy-handling, lightweight cable.

Best way to anchor guy wires

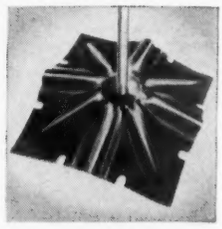
A guy-wire anchor has to do many things for you. It must hold the guy firmly in place, by getting a strong grip on the soil it's planted in.

It must be easy to install, and it must have plenty of underground surface to hold it in place.

You can expand the Chance 8-Way expanding anchor with only eight or nine sharp blows. Its eight plates open to a full width that puts as much as 63% of the anchor under undisturbed earth. The guy load is distributed evenly over all of these blades, for maximum holding power.

There is no waste space between blades—when expanded, the anchor forms a complete pyramid-shaped square, providing a strong foothold. Sizes from 60 to 200 sq. in. in area.

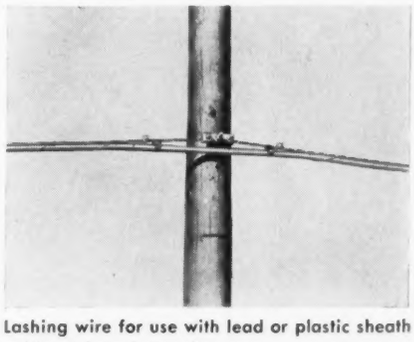
8-Way anchor before installation.



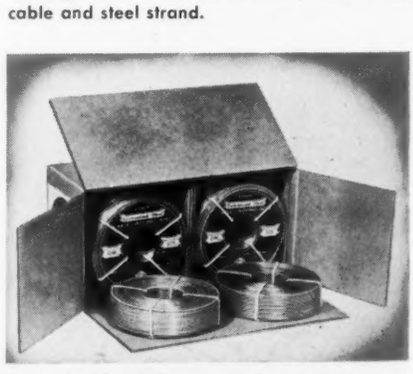
After expansion.

Lashing Wire for economical cable spinning

When you spin cable for suspension, the lashing wire is a key factor. That is why major telephone companies have gone to **Crapo** Corrosion-resistant Stainless Steel Lashing Wire for cable spinning. The 1200-foot coils of .045-inch diameter wire specially designed for use with modern cable lashers, make for over-all economy. Available also, in .065-inch diameter, 450- and 650-foot coil lengths.



Lashing wire for use with lead or plastic sheath cable and steel strand.



Crapo Lashing Wire comes in compact, easy-to-use thread-lay coils.

All Crapo Galvanized Steel Cable Lashing Wire is extra-heavy "C" coated for longer life. Furnished in .091- and .061-inch diameters.

Made by Indiana Steel & Wire Co., Inc. Made available to you by Stromberg-Carlson.

Protect yourself from battery failures

You can use Exide Manchex Batteries for central office and private branch exchange equipment, and be sure you'll get a supply of power when you need it. These batteries have been proven daily in exchanges of every size, and for 67 years Exide Batteries have been serving the telephone industry.

The manchester positive plate with its exclusive button-type construction provides exceptionally

Old age, even high discharge rates, have little effect on this battery.

long life. Latest developments on molded glass jars permit compact space-saving installation.

Heavy terminal posts with copper inserts provide extra conductivity for sustained voltage at high discharge rates. Microporous rubber along with slotted plastic separators, are impervious to chemical and electrical reactions. Plastic spacers assure plate alignment.

Distributed by

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Factory, General Offices:
ROCHESTER 3, NEW YORK

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Cook Electric Co. Opens District Office in Baltimore

COOK ELECTRIC CO., Chicago 14, Ill., has opened a new district office at 2503 St. Paul Street, Baltimore 18, Md., with George C. Milan as district manager, according to Charles H. Brunell, sales manager and vice president. Mr. Milan was formerly installation engineer with Aero Engineering Co., New York, N. Y., division of Garrett Corp., Los Angeles, Calif. Previously he was a power plant design engineer with Fairchild Aircraft Division and also with the Glen L. Martin Co. He is a member of the Society of Automotive Engineers, Institute of Aeronautical Sciences, American Ordnance Assoc.

G. C. MILAN

Stromberg-Carlson Earnings Rise 19% Last Year

THE STROMBERG-CARLSON CO. last month declared a dividend of 56¼ cents per share on its 4½% convertible preferred stock, payable April 1 to stockholders as of March 15. A dividend of 40 cents a share was also declared on common stock.

President Robert C. Tait reported that net sales of the company last year amounted to $63,509,429, while net earnings after all charges and taxes amounted to $1,981,754, an increase of 19% over the 1953 net.

One-Man Acctg. Machine For the Small Company

INTERNATIONAL BUSINESS MACHINES CORP. demonstrated in Chicago last month a new "*one-man-force*" office machine which not only eliminates many costly, repetitious clerical tasks, but also shaves to a fraction the time spent on the paper work that overloads an office force and a company budget.

With the new machine, called the *IBM Cardatype Accounting Machine*, wasteful copying is done away with. Operations that involve several departments of office or plant — say, order writing or stock record accounting — may now be done at a centralized point. Furthermore, the entire set of related forms, tickets, and documents needed are produced simultaneously by one Cardatype operator in less time than was required before to prepare one of the forms.

IBM also demonstrated its new, high-speed punched card sorting ma-

The new IBM Cardatype Accounting Machine, Type 858, will produce simultaneously up to four different sets of documents, tags, or forms from a single typing. Most of this typing is done automatically as the Cardatype reads information from punched cards. This operation is supplemented by the operator's manual typing or keying of information on the auxiliary numerical keyboard. Other features of the new machine are an automatic computer, a programming unit, and units to produce a by-product punched tape or a set of punched cards. The Cardatype's units are (left to right): two unattended electric typewriters; Cardatype control console and card reader with auxiliary numerical keyboard on top; transmitting electric typewriter.

SEAL OUT TROUBLE...

Permanently

with Easy-to-Use

KEARNEY Airseal

Corrosion and oxidation are no longer maintenance problems when your ground rod connections are sealed with KEARNEY Airseal. This weather-proof compound forms an air-tight coating over any shape connection with a simple squeeze of the hand. Airseal will not deteriorate . . . even when used on ground rod connections below ground. It remains pliable indefinitely . . . at temperatures from –50°F up to 250°F.

For time-saving use KEARNEY Airseal — available in convenient sized pads, or in 10-foot rolls.

For Better Construction . . . For Safer Maintenance

Specify 263

KEARNEY PRODUCTS

4224-42 Clayton Ave. • St. Louis 10, Mo.

Canadian Plant: Guelph, Ontario

chine, known as the Type 83 Sorter. The rapid-fire Sorter takes a stack of 1,200 punched cards, mixed in random order, and at the rate of 1,000 cards a minute places them in numerical or alphabetical order. This is roughly the equivalent of a super card shark taking an ordinary deck of playing cards and in three seconds arranging the entire deck in order.

The new IBM Cardatype is uncomplicated in appearance and easy to operate. The basic machine has three units: an IBM Electric Typewriter, an auxiliary numerical keyboard, and IBM equipment for reading punched cards and automatically controlling the entire Cardatype operation according to a preset program. Three more connected, unattended typewriters may be installed beside the Cardatype for the production of related forms such as shipping tags or stock selection tickets.

In addition, there is the automatic computing unit. IBM card punching or tape punching units and a second auxiliary keyboard may also be added.

Here's how the Cardatype handles a billing operation, an example of its ability to play the business game like two speedy triple-threat halfbacks playing on the same football team:

The Cardatype operator gets the customer's order. Alongside the machine is a tub file holding prepunched cards. There will be a card for each customer containing his name, address, credit terms, and other fixed information. There will also be individual cards for each item in the company's product line.

The operator feeds the customer's card into the Cardatype reader and the electric typewriter automatically starts to fill out an invoice form. The form is automatically positioned for each entry by the preset control or programming unit. At the same time, three connected typewriters are standing by. One is filled with a roll of blank stock selection tags. A second one holds shipping tags. And a third holds an invoice register. All are unattended. At the direction of the control unit, any or all of these typewriters will duplicate the information that is being fed into the Cardatype.

Changing data — the date, order number, and so forth — are entered from the auxiliary key-

Please Turn To Page 109

The new IBM Type 83 Sorter will put a stack of punched cards, mixed at random, into numerical or alphabetical order at the rapid-fire rate of 1,000 cards per minute. The high-speed sorter holds 1,200 cards in its input hopper, and each of the stacker pockets holds up to 900 cards.

"NOT EVEN A CRACK APPEARED...

it was 48 degrees below zero and

I TURNED it

I TWISTED it

I BANGED it against a wall"

This is what Wire Chief, **Harry Reimer** reports about

ANSONIA Ankoseal®

THE first ALL-PLASTIC CABLE

Mr. Harry Reimer, who carried out the rugged test described at the right, is Wire Chief of the Municipal Utilities System of the City of Fairbanks, Alaska.

It is added proof of the quality of Ankoseal Cable and its ability to stand up under the most rugged operating conditions.

"I gave it (Ankoseal) a rugged test. The cable was placed outdoors until the temperature hit –48 degrees. I then tried my best to break or crack the cable by every conceivable means. It was turned, twisted and even hit against a block wall. After this treatment, I inspected the cable and found no crack in the outer jacket nor were any of the conductors injured. I convinced myself that if this cable could stand such treatment at –48 degrees, it certainly will stand the test hanging on the poles at –60 degrees.

***ANKOSEAL CABLE** is sold to independent telephone companies through authorized Telephone Supply Distributors only.*

THE ANSONIA WIRE & CABLE COMPANY

ANSONIA, CONNECTICUT Phone REGENT 4-3306

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board by the operator. Any special instructions are entered on the keyboard of the master typewriter.

The operator then pulls from the file the commodity cards for the items ordered and feeds them into the card reader. Again, the control unit directs this information to whichever of the four connected typewriters require it. The operator enters in the auxiliary keyboard the quantities ordered and the appropriate discount.

Now, the computer unit goes to work. Taking its instructions from the program, the computer multiplies quantity times price, applies the discount, adds the sales tax, and enters all of these figurs and the net price on any of the forms where it's called for. The computer also does the totaling and establishes the net amount billed.

The operator's principal job has been to select the proper cards and occasionally to enter the date, order number, and quantity. Most of the work is done by the machine, so errors are cut to a minimum. When the machine is doing the typing, the operator can save time by refiling the used cards.

There is a good chance, of course, that some or all of the data entered on the various forms will be wanted for still more applications. But with the Cardatype, the usual laborious copying chore can be eliminated. The machine can be equipped to register pertinent data either in IBM punched cards or punched tape. This opens several new areas.

For example, the cards can be fed directly into other IBM machines for other processes: accounts receivable, stock records, or inventory and statistical analyses.

Or the punched tape can be mailed to a distant point, perhaps the company's general offices miles away or the branch sales office which made the original sale. There the tape can be converted back to cards for any further accounting process.

A more rapid transmittal could be made by using IBM's new Data Transceiver. Here, the information on the new cards may be rapidly sent — over telegraph or telephone circuits or, shortly, by radio — to any location within the range of communications. At the distant point, possibly the company's headquarters in England or Hawaii, a duplicate

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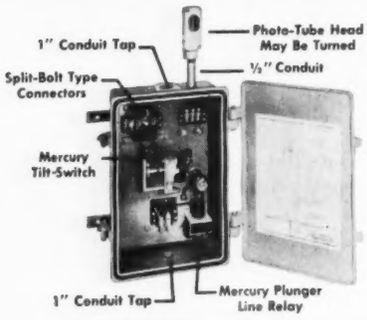

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set of cards is produced instantaneously on a second Transceiver.

The company's top management, no matter where it is, is thereby furnished with important and accurate information that is hot off the griddle — sales, production, cost, and inventory figures.

The Cardatype is fully as useful to the business that's not spread across the country or around the globe. Here are a few of the many ways it can be put to work in any business organization: order writing, accounts receivable, purchase order writing, account payable and check writing, stock records, payroll and check writing, personnel accounting, and appropriations and budget accounting.

In each of these instances, a single Cardatype operator, doing a minimum of manual typing, can direct the operation that produces a full set of documents.

The newly-designed IBM Type 83 Sorter also has many features that will permit it to plow through an office's roadblock of paper work. The hopper in which cards are placed for feeding into the machine holds 1,200 cards. The stacker pockets which receive the sorted cards can be adjusted to hold 400, 565, 735, or 900 cards. Sorting on a specific card-punch position can be suppressed by the use of one of 12 buttons, while a sorting switch and two editing switches determine which combination of punches falls into which pockets. An edit switch rejects cards that do not conform.

DEMONSTRATE NEW IBM CARDATYPE: — THOMAS J. WATSON, JR., President, International Business Machines Corporation, views the operation of IBM's new "one-man office force" accounting machine introduced last month at the Edgewater Beach Hotel. GRACE SEAVOY operates the new automation-type office machine.

Electric Products Names Doss To New Post

GORDON J. BERRY, president, The Electric Products Co., Cleveland, announces the appointment of G. J. Doss as manager of marketing. He will be responsible for the coordination of sales and promotion of all divisions of the company. Mr. Doss came to The Electric Products Co. in 1946 as manager of the Cleveland District Office and in 1951, was advanced to assistant sales manager. In 1953, he was appointed general manager of Electric Product's switchboard and control division. He brings to his new position a broad experience in electrical sales and engineering.

G. J. DOSS

Stromberg-Carlson Forms Value Analysis Dept.

G. G. HOIT, executive vice president of the Stromberg-Carlson Co., has announced the formation of a Value Analysis Department and the appointment of Edward F. Miller to head it up as Value Analyst.

This department, which is a part of general purchasing, will be responsible for applying a new technique to the investigation and study of materials and products used and produced by all divisions of the company, with the purpose of assisting in cost reduction as it relates to the value received for money spent.

Mr. Miller joined Stromberg-Carlson in 1944 following extensive industrial and sales management experience with Miller Franklin Co., R. H. Macy & Co., and Anderson Nichols Co., all of New York City, and the Hickok Manufacturing Co. of Rochester. At Stromberg-Carlson he was in charge of market research for the radio-television division for four years before becoming a member of the general purchasing staff, where he has been involved in government priorities, and special purchasing assignments.

E. F. MILLER

Born and educated in New York City, Mr. Miller attended Stevens Institute of Technology, majoring in mechanical engineering, before join-

Please Turn To Page 114

NEW PRODUCTS' SHOWCASE

For complete data on New Products and Services described in this department, fill in Coupon on page 113.

New Plastic Straps

NON-CORROSIVE plastic straps for fastening and supporting all types of open wires, cables and cords have been developed by *Holub Industries, Inc., (Dept. TE&M), Sycamore, Ill.*

These straps are made of polyethylene which is strong, tough and pliable, yet light in weight. They are made in black and ivory colors.

Important advantages claimed are that plastic straps are unaffected by

heat, cold, moisture, salt air and gaseous fumes found in many localities. They will not age, rot, rust or corrode.

The edges of the straps are thick, pliable and round for protection against short circuits, especially under conditions of vibration, strain, wind and weather. They are fast and easy to use because the mounting holes are designed to hold screws or nails while driving.

For further details, please ***Check New Product* 808.**

Motor Generator Set

THE illustration shown below shows the Kato 400 cycle, motor generator set. It consists of a 14-pole, AC alternator, driven by 10 HP, 3-phase squirrel cage induction motor. The alternator rotor and motor armature are mounted on a common shaft. A DC exciter is mounted on the alternator end providing 125 DC volts for excitation.

The machines are available with automatic voltage regulators providing two per cent plus or minus with 80 per cent power factor load. Inherent regulation is about 10 per cent

with 100 per cent power factor load. A voltage regulator is recommended if power load is below 90 per cent.

According to the Kato Engineering Co., 1415 1st Ave., (Dept TEM), Mankato, Minnesota, the machines are available in sizes ranging from 500 watts to 125 KW both single phase and three phase. Machines can be furnished with pneumatic wheels as shown which permits ease of moving the motor generator set from shop to shop or laboratory. It provides a source of 400-cycle current which can be moved from place to place and plugged into any standard three phase power circuit—*For Complete Data* ***Check New Product* 809.**

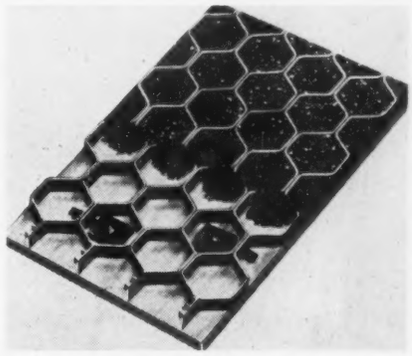
Floor Armor

ANNOUNCEMENT OF a new Hexteel safety floor armor that has less weight per square foot and a greater exposed steel surface was made recently by the Klemp Metal Grating Corp., Chicago, Ill.

This is believed to create the most durable floor ever designed for abnormal wear and rough usage, although it is extremely economical to install. (The old types of steel surface armor had more weight per square foot and less exposed steel surface area.)

The new Klemp 3/8" x 16 gage (.065) Hexteel has been developed to meet the increasing demand for a new type steel floor armor which can be used for resurfacing existing concrete or wood floors. The exposed steel surface armor is 18.15 square inches per square foot, and the weight of the new Hexteel is 1.7 pounds per square foot.

New Hexteel Surface Armor filled with a hot or cold mastic is ideal for resurfacing ramps, garages, factory aisles, parking areas, runways, load-



ing docks, depots, traffic surfaces, and wherever rough usage decreases the lasting durability of the surface area or flooring.

When installed, Hexteel forms a continuous steel floor armor which eliminates cracking, swelling, warping and shrinking. These armored floors are impervious to wheels of any size and are designed to take the brunt of rolling loads.

Additional literature and information on usages and installation of the new Hexteel is available by writing Klemp Metal Grating Corp., 6603 S. Melvina Ave., (Dept. TE&M) Chicago 38, Ill., or by ***Checking New Product* 810.**

"Electric Eel"

DESIGNED TO clean sewers, waste and process lines from 4" to 16" in diameter — and built for use where electricity is not available — the new Electric Eel cleans out roots, stones and debris in one speedy, thorough operation . . . saves time and money . . . eliminates all digging. It will clean lines up to 100 ft. in length . . . and can easily be operated by one man.

The unit is powered by a 2 H.P. gasoline engine which has a built-in clutch and a transmission which provides two forward speeds (500 and 200 R.P.M.) as well as a reverse. Final drive is through two "V" belts to a countershaft which is equipped with an overload clutch. For extra

THE BUYERS' GUIDE

ADVERTISING, Directories — *General Telephone Directory Co., 604 Pine Ave., Long Beach, Calif., and 1800 Busse Highway, Des Plaines, Ill.*—[ADV. 1]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, *W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.*—[ADV. 2]

BELTS — CLIMBERS — PLIERS — SAFETY STRAPS — CONSTRUCTION TOOLS. *Klein & Sons, Mathias. 3200 Belmont Ave., Chicago 18, Ill.*—[ADV. 3]

BOOTHS—Acoustic Telephone — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 4]

BRUSH & WEED KILLERS — *Thompson manufactures many types of brush and weed killers. Write for helpful information on specific problems. Thompson Chemicals Corp., St. Louis 3, Mo.*—[ADV.5]

CABLE, All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard. — *The Ansonia Wire & Cable Co., Ansonia, Conn.*—[ADV. 6]

CORDS, Switchboard (with or without plugs), Instrument (retractable and regular) and Operators — *Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.*—[ADV. 7]

CORDS, Switchboard & Telephone — *Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.*—[ADV. 8]

FURNACES — For quickly and economically melting lead and paraffin — *Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.*—[ADV. 9]

INSULATORS, Porcelain — *Porcelain Products Inc., Box 300, Findlay, Ohio.*—[ADV. 10]

LIGHTWEIGHT PULLERS — *Coffing Hoist Company, 800 Walters St., Danville 5, Ill.* — [ADV. 11]

PIPE PUSHERS — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 12]

POLE HOLE DIGGERS — *For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.* —[ADV. 13]

POLES, Southern Yellow Pine — *Colfax Lumber & Creosoting Co., Inc., P. O. Box 23. Pineville, La.*—[ADV. 14]

POLES, Southern Yellow Pine — *Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.*—[ADV. 15]

POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 16]

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 17]

REBUILT TELEPHONE & SWITCHBOARDS — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 26, Ill.*—[ADV. 18]

TRUCK BODIES — *Highway Trailer Co., Edgerton, Wisc.*—[ADV. 19]

WIRE, Insulated — DATED DROP WIRE — Neoprene or Weatherproof — *Alphaduct Wire & Cable Co., Milltown, N. J.*—[ADV. 20]

WIRE, Insulated Drop and Bronze or Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.*—[ADV.21]

WIRE, Telephone, for all inside and outside uses — *Whitney Blake Co., New Haven, Conn.*—[ADV. 22]

maneuverability, the entire unit is mounted on a rubber tired chassis which has two 8″ casters on the front.

The dual cable used on the machine is self-feeding and completely eliminates helixing and loss of cable in the line. This cable is available in 8′ sections so that it is inexpensive to replace in the event of damage —

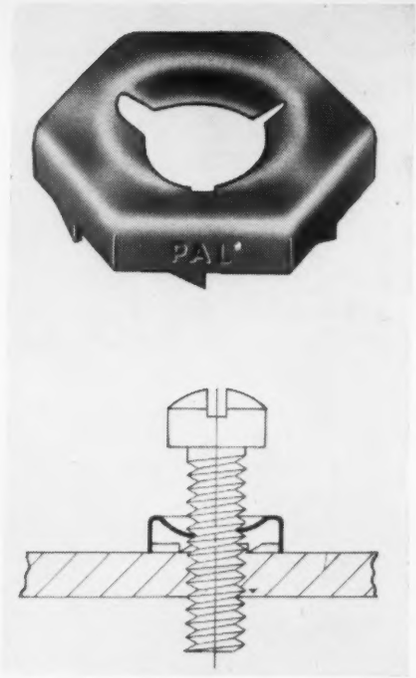
and is furnished with positive, snap lock fittings. It consists of an outer coil, open wound, right hand — and an inner coil substantially smaller in diameter which is wound left hand. The open winding of the outer coil makes the cable self-feeding and eliminates all manual handling. Both coils are tied together, so that if one breaks — the cable may still be pulled from the line. In operation, the one coil tends to increase in diameter while the other coil tends to decrease — thus balancing the forces that cause helixing. Forward feeding of the cable takes place with the right hand rotation. To feed out of a line, the machine is simply placed in reverse.

For complete information, write *Ohio Tool & Engineering Co.*, 553 *N. Spring St., (Dept. T E & M) Springfield, Ohio,* or ***Check New Product* 811.**

Adjusting Screws

THE NEW "Palnut" Tension Type Lock Nuts make it possible to easily and quickly change the setting of an adjusting screw to any desired position. Specially designed barbs at the base of the "Palnut" tension nut grip and hold securely. Once assembled, repeated adjustments of the screw can be made with a screwdriver, without ever re-adjusting or changing the position of the "Palnut" tension nut.

According to the manufacturer,



"Palnut" tension nuts exert a resilient spring locking action on the threads of the adjusting screw, holding them to the adjusted position, despite vibration. Screws turn smoothly with minimum wear on the threads at maximum torque, even after repeated readjustments. Back-off torque of the "Palnut" tension nut is twice the installation torque. No serrations, special holes or other auxiliary holding means are necessary. Easy, fast assembly is obtained with ordinary deep socket wrenches, special manual torque wrench or with small air guns for power assembly.

For free samples and literature write *The Palnut Co.*, 61 *Cordier St., (Dept. TEM), Irvington* 11, *N. J.*, or ***Check New Product* 812.**

High-Low Temperature Tape

A NEW HIGH BOND-strength tape that will perform at temperatures ranging from 80° below zero Fahrenheit to 500° above has been released by Mystik Adhesive Products, 2635 N. Kildare St., (Dept. TE&M), Chicago 39, Ill.

Identified as Mystik Brand No. 7001 this new tape utilizes a glass fabric backing and a new, inorganic, semi-cured silastic compound.

The firm's research and development laboratory also reports that the new tape qualifies fully as Class H insulation. It offers minimum dielectric strength of 1200 v/m and an excellent electrolytic corrosion.

In addition to electrical purity and excellent high- and low-temperature

performance, Mystik No. 7001 has excellent stability in the presence of lubricating oils; sulphuric, hydrochloric, acetic, and nitric acids; and ammonia, chlorine, bromine, and iodine.

For additional information and testing samples, ***Check New Products* 813.**

Truck Tracks

TRUCK TRACKS like these not only have become virtually routine equipment where the armed forces face mud, snow, sand and rough going, but they've been widely adopted by truckers and contractors facing the

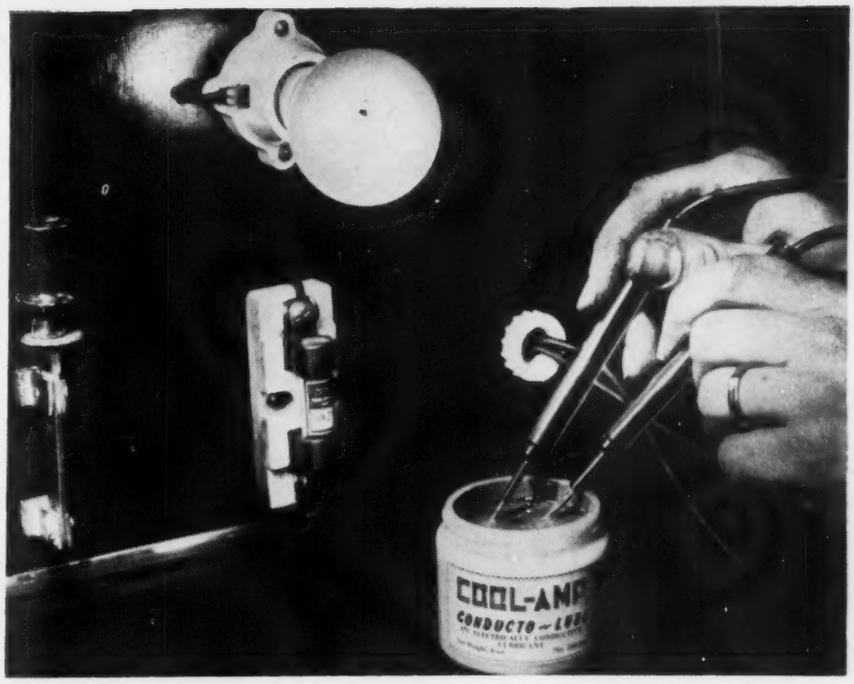
same mobile problems with trucks, tractors, cranes and similar rubber-tired, heavy equipment.

These truck tracks — available at equipment dealers or from the P & G Supply Co., 2262 N. Albina St., (Dept. TE&M), Portland 12, Ore. — fit most tires, are easy to mount, give up to 500 per cent greater flotation, and are quickly and easily adjusted to various size tires and road conditions. P & G supplies them in standard tracks of 15 inches for single and tandem axles. Heavy duty 18-inch tracks are also available for many larger size tires. — ***For complete data, Check New Product* 814.**

Hand Type Wire Stripper

A NEW INEXPENSIVE Hand Type Wire Stripper for general work and production jobs has been announced by CROWN Industrial Products Company, 1205 Amsterdam St., Woodstock, Ill.

Fabricated of hardened steel construction throughout, the stripper has interchangeable, precision-m i l l e d stripping blades carefully matched to strip insulation clean without damaging the wire. It strips both stranded and solid wire.



Durable, but light in weight, the stripper is available in three models. Replacement blades are also available. Changing of the blades can be done in a matter of seconds by removable of two screws.

For further information, ***Check New Product* 815.**

"Conducto-Lube"

"CONDUCTO-LUBE" is a highly conductive top-grade lubricant designed for use in conducting hinge joint switches. It is ideal for high-speed air blast breakers where a lubricant is essential.

The illustration shows conductivity by a low voltage test in a jar of "Conducto-Lube," with the current illuminating the globe.

According to the manufacturer, the product's lubricative qualities can be used on knife blade switches to prevent their "balling up" and "freezing."

The conductivity of the lubricant will reduce resistance and heating.

For complete data, ***Check New Product* 816.**

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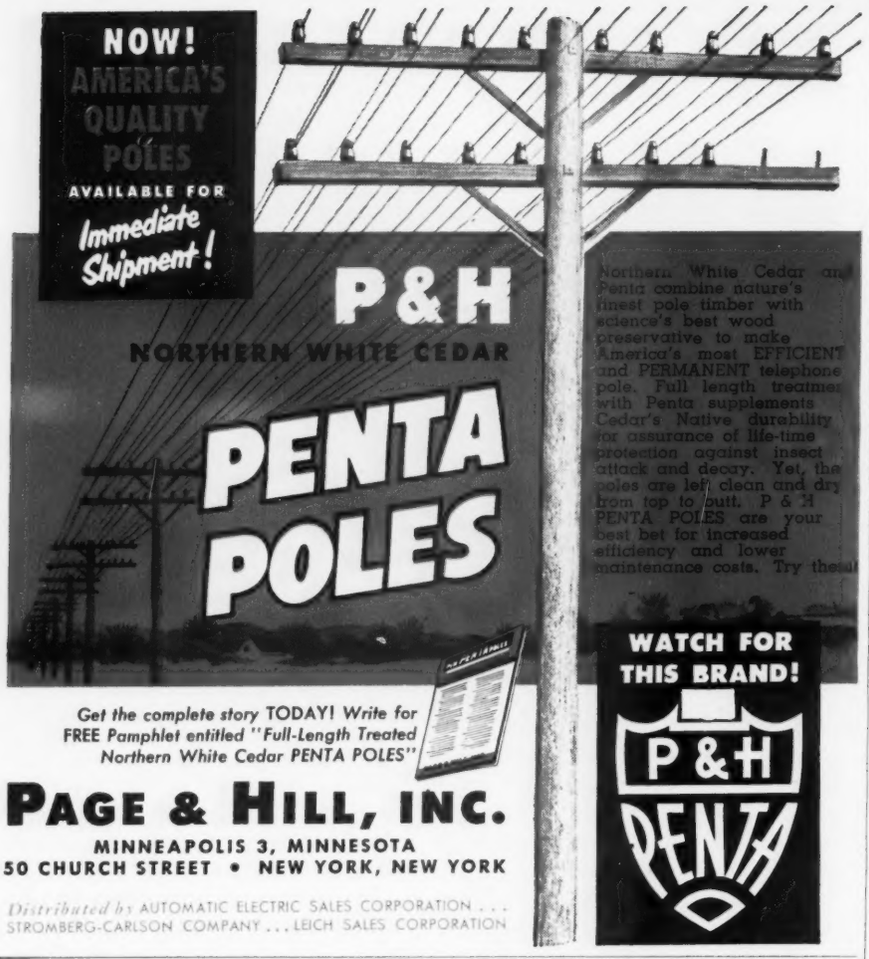
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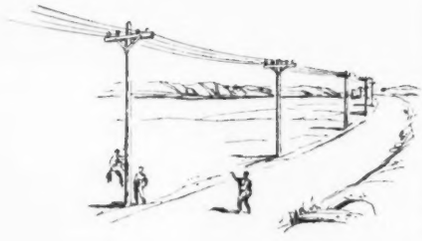

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For information, write Armstrong Cork Company, Glass and Closure Division, 295 Fifth Ave., New York 16, New York.

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for communications . . . for power

(Continued From Page 110)

ing the Army during World War I, where he served as Pursuit Pilot in the U. S. Army Air Service, with nine months of active combat duty in France.

Microwave Relay Links Demonstrated By Raytheon

TWO NEW MICROWAVE relay systems, one for relaying telephone messages and dialing signals, the other for carrying TV programs in full color or black-and-white, with sound, were demonstrated to federal government agencies and representatives of industry at the Raleigh Hotel in Washington, D. C., last month.

The demonstrations were held by Raytheon Manufacturing Co. to show its "Telelink" Model TCR-12 and the color television relay model KTR-100A — complete packaged systems designed for easy installation or use where transmission lines are not available or are impractical to construct. Both types of equipment meet or exceed the FCC standards and are tailored to industry's needs.

The "Telelink" can bring telephone service into remote rural communities where service does not exist because of the difficulty, or cost, of stringing miles of wire on thousands of poles. The narrow microwave beam, carrying up to seven two-way messages simultaneously, spans wild and rugged timberland, mountains, lakes, and is impervious to storms, falling trees, ice, and other hazards to wires. It provides an automatic, economical two-way communication system for use in the telephone, pipeline, construction, railroad, turnpike, and power utility industries. It also has advantages for logging and forestry applications, and is suitable for use by fish and game commissions. It can be connected to existing telephone, telegraph, teletype, telemetering, and other types of supervisory communications equipment without being changed or modified.

The KTR-100A television link has been hailed as the "Seven League Boots" of television. It picks up sound and color picture from the camera and microphones, and sends both signals back to the studio on one microwave channel. In a sense, the TV camera for the first time is free to roam the city's streets in quest of news, or attend the ball games, etc., without the need for being con-

nected to the studio by wires. With the reflecting antenna set up on a nearby rooftop, the beam can be focused on the studio up to 25 miles away, where the program goes out on the air over conventional telecasting equipment.

The KTR-100A units are light enough for one man to carry, including its luggage-type case, the aluminum "dish" or antenna, and tripod. Exceeding most FCC specifications, this equipment has proved its ability to relay color and black-and-white programs without loss of original quality in either sound or picture. It is particularly flexible for remote pickups, studio-to-transmitter links, or in any application involving low-cost, reliable TV microwave transmission within the limits of line of sight and suitable path clearance.

The demonstration was attended by officials of the Federal Communications Commission, the Rural Electrification Administration, and the military services, as well as other government officials concerned with microwave links. Industrial representatives were also present from the radio and telephone fields, including consulting engineers and communications representatives of other industries whose operations require dependable communications systems operating under adverse conditions.

"Ping" Fairly Celebrates 45 Years With Kellogg

C. F. "PING" FAIRLY, district manager of Kellogg Switchboard & Supply Co., Los Angeles, and well known among West Coast telephone men, celebrated his 45th year with Kellogg recently.

President James H. Kellogg, and other company officers and sales executives paid tribute to Fairly at a dinner held in Chicago, January 24. H. G. O. Weiler, vice-president of the Southern Nevada Telephone Co., a guest at the dinner, joined with the company to commend "Ping" on his long and successful career in telephony. An engraved gold wrist watch was presented to "Ping" by the company.

Fairly was born in 1888 in a sod house on the northwestern plains of Colorado where his parents settled after moving from the midwest in a covered wagon. In 1893, the Fairly family moved to Covina, California,

Please Turn To Page 118

1500 pounds

MINIMUM COMPRESSION RESISTANCE OF

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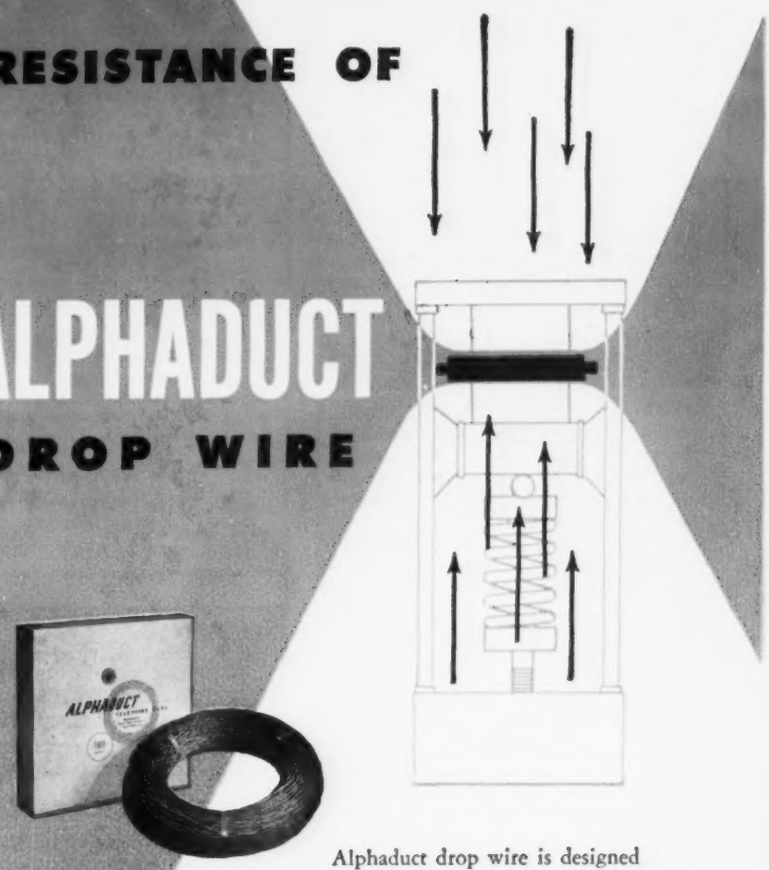

Alphaduct drop wire is designed and built to be the longest lasting drop wire you've ever installed. It's tested . . . completely, thoroughly and often to make sure that every single coil is up to Alphaduct's rigid standards.

Here's how the insulation is tested to make sure it won't crush.

Short lengths of Alphaduct are placed between the steel plates of a compression testing machine. These plates are then forced together at uniform speed until the insulation crushes. Alphaduct parallel drop wire has to withstand a minimum load of 1500 pounds before it breaks. Each conductor of Alphaduct twisted pair will withstand a 1000 pound pressure.

You don't have to worry about a little rough handling breaking down this kind of tested insulation. Try Alphaduct drop wire. It's dated, so you can see for yourself the extra wear it provides.

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POSITIONS
SERVICES

THE CLEARING HOUSE

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OPPORTUNITY
EQUIPMENT

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HELP WANTED: — Installer — Repairmen wanted. Experienced. Good working conditions. Top hourly rate. Steady employment. Write: Elyria Telephone Co., Elyria, Ohio.

CABLE SPLICERS, Equipment Installers, Station Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 6100 N. 20th, Philadelphia, Pennsylvania.

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POSITION WANTED:—10 years experience — Magneto, Common Battery, Dial, Central Office and Special Equipment, Installation tion and Repair. Desire position with progressive company. Write Box No. 8940, Telephone Engineer Publishing Corp., 7720 Sheridan Rd., Chicago 26, Ill.

SITUATION WANTED: — Experience — Three years trouble-shooting on Dial, Common Battery and Magneto systems. One year Line Construction. Two years Line Clearing. Two years installing switchboard equipment. Age 32. Write: Kenneth Gamble, Box 263, Monticello, Minnesota.

POSITION WANTED:—Man and wife to manage small exchange, experienced in all phases, or position as wire chief, central office repairman, or outside plant. 20 years experience. Dial or Manual. Best of references. Write Box No. 8939, Telephone Engineer Publishing Corp., 7720 Sheridan Rd., Chicago, Ill.

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Western Electric # 320,EW-3 Desk sets. Like New ..... @ $14.00
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Prices are F.O.B. Chicago, Ill.
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FOR SALE: — Ford Truck, 1950 Model F-5, 1½ ton, 134" wheel base, 38,000 miles, excellent condition, equipped with Powers Special Series 500 light duty line construction and maintenance body, rear working platform, Model 2MBC, 15,000 pound winch, standard SAE power take-off and two speed hanger bearing, Model LMBS pole derrick, 300' ½" winch cable. Write: A. C. Barnes, Mgr., M.J.M. Electric Cooperative, Inc., 257 N. Broad Street, Carlinville, Ill.

LIMITED SUPPLY USED CALCULAGRAPHS
Model #30- Case C. 20 Volts-60 Cy. @ $20.00
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FOR SALE: — Western Electric M-1 A telephone carriers. 5 channels available in approximately 2 months. Contact Deschutes Telephone Co., Maupin, Oregon.

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All New Equipment in factory crating
Kellogg 600-900 low type 2 Position Universal Switchboard
180 C.B. (Convertible) Lines
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10 Toll (3 relay type) Lines
32 Universal Cord Circuits
Semi-Selective ringing
Complete with Power, Ringing, Test Board, Relay Rack and main frame.
If interested please contact
MUTUAL ELECTRIC CO.,
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RECONDITIONED
FEDERAL #804A

Magneto Compact set convertible to desk or wall.
Equipped with capsule type transmitter and receiver. Can be used on long rural lines.
PRICE $19.50 EACH
Terms 2%—10 Days Net: 30
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#18 twisted 2-conductor wire with a heavy polyethylene insulation, comparable to regular Drop Wire. Comes in one continous length (no splices) on one-mile or one-half-mile steel reels. (No charge for reels). Can be spliced with 3-045-B Nicropress Sleeves and Plastic Tape. Has breaking strength of 300 lbs. and resistance of 185 ohms per loop mile. Discount allowed on quantity orders.
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(latest style Signal Corps) Thermoplastic jacket, 2-conductor, twisted pair (4 copper, 3 steel). Spliced with 3-045-B Compression Sleeves and insulated against moisture with Bi-Seal Tape.
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FOR SALE: — We will accept bids on a North Electric C X 30 line 48 volt dial switchboard. Three (3) links, thirty (30) lines equipped, complete with 8 x 10 insulated wood frame building, mainframe, batteries rectifier, subcycle, code ringing, mainframe and associated fuse panels. This unit was recently replaced with a 100 line dial switchboard. Write: Dakota Cooperative Telephone Company, Inc., Box 186, Irene, South Dakota.

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Nine IBM Electromatic Toll Billing Machines; very good condition. Price: $150.00 each
Two Model G-1 Hand Graphotypes; fair condition. Price: $10.00 each
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One Model 1700 Addressograph; good condition. Price: $75.00
One Model 1700E Addressograph; good condition. Price: $50.00
Above prices F. O. B. Portsmouth (crating and shipping to be paid by purchaser). If interested, please contact — Mr. L. W. Snodgrass, OHIO CONSOLIDATED TELEPHONE COMPANY, PORTSMOUTH, OHIO

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W. E. #22-C Combined Jacks and Signals on #89-B Mounting (5 per strip) *NEW*
S. C. #350-B Combined Key and Supervisory Drop Assembly (Replaces #169-F Key) *NEW*
Federal #804-A Magneto Handsets for Desk or Wall Mounting—*RECONDITIONED*

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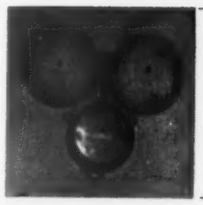

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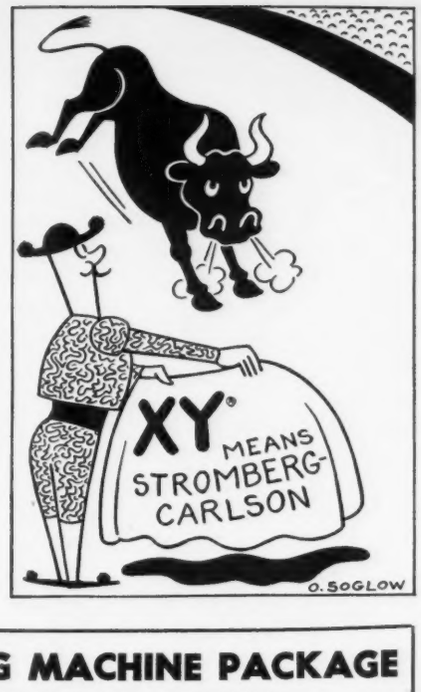

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Price includes . . .
"ENTERPRISE" Hyd. Controlled Earth Boring Machine $4617.00
Turntable Fore and Aft with Steel Body $975.00

Mounting digger on body, extra equipment and lighting including rear axle stabilizers $399.50
Customer will furnish truck or we will quote on proper size.

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EVEREADY AIRCELL BATTERIES • New Government Surplus • T-1600 Type, 600 Ampere Hour, 1¼ Volt Cells.

Used for railroad, construction, telephone service and other applications where long life and constant current are desirable.

Price at $1.75 each. Box of 8 for $12.50. Write for quantity prices.

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WHY $12,000-$20,000 JOBS ARE THE EASIEST TO GET TODAY

Here Are Some Surprising Facts About the Serious Shortage of High-Salaried Executives

What You Can Do To Qualify for Top-Level Jobs Open Right Now

SURPRISING at it may seem, the really big jobs today are the hardest to fill—and the easiest to get. Men who can handle top-management jobs can now choose from any number of openings that pay $12,000, $15,000, $20,000 or more.

J. K. LASSER

It was J. K. Lasser, famous business and tax expert, who went after the facts about the scarcity of qualified men for high-salaried jobs. Polling the heads of companies in many fields, he consistently heard from them the same answer. What men in the middle brackets need to make the high-salary grade, these men told Mr. Lasser, is a general, well-rounded knowledge of business procedure.

Gives working methods of top men

This simple answer gave Mr. Lasser an idea for a brand new plan that would literally lead men out of the $5,000-$10,000 plateau and into the top jobs. He asked the foremost men in every field to reveal working methods that have brought success in marketing, public relations, accounting, budgeting, insurance, and "know-how" in every business procedure for top management.

Mr. Lasser consulted only top men, such as business analyst Roy A. Foulke, Vice-president, Dun and Bradstreet; marketing expert Marion Harper, Sr.; nineteen executives nationally known for their successful methods. Then he simplified and "boiled down" this wealth of knowledge into J. K. Lasser's BUSINESS MANAGEMENT HANDBOOK.

What you learn from these executives

Through this book the businessman is able to view each department operation from the top down, with an expert as guide. He learns to talk, think, and plan with the kind of well-rounded authority expected of top management.

In this book you learn streamlined methods of distribution, how to design systems for internal control of business, how to control operations through budgeting, how to avoid business frauds, how to cut paper work in half—to mention only a few helps. Men who truly want to get ahead can ready themselves for the next step up with this HANDBOOK. Order your copy today. The price is just $8.50.

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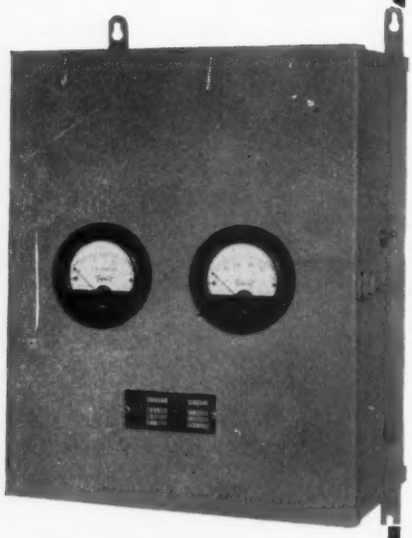
for Years-
and Years-
and Years-
of Service!



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ELECTROX
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In sizes and capacities to meet every telephone power requirement.

See your Schauer Jobber.
Write for Bulletin 1465.

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MANUFACTURING CORP

4516 Alpine Ave. Cincinnati 36, Ohio

where "Ping" attended elementary and secondary schools.

In 1906 he was initiated into the telephone business when he took a part-time job as a helper on a Kellogg installation. He continued with installation work until 1910 when he had to decide between a $4.00 a day firstclass installer's job or a $1.75 shipping clerk's position in Kellogg's San Francisco office. "Ping" chose the shipping department job because it offered him the opportunity of learning all phases of the telephone business. He supplemented his shipping clerk's pay by pitching with various San Francisco baseball teams on Sunday for $25.00 a game.

Following a move into the office as an order clerk, he got his chance to try out his sales ability and he proved an immediate success. In 1913, Kellogg sent Fairly on a "pioneering" sales trip to Alaska where he succeeded in selling Kellogg installations in Juneau, Skagway, Valdez and Anchorage. These installations, the first Kellogg had sold in this new territory, included switchboards and other equipment.

When Fairly returned to the States, he was transferred to the Portland, Oregon, territory, but after three months he was offered the opportunity of taking over the Los Angeles territory.

During his long and illustrious career with Kellogg, "Ping" Fairly has not only been able to see, but also participate in the impressive growth of many Independent telephone companies. One of his most pleasant associations has been with the Southern Nevada Telephone Co. which stems back to 1917 when he first contacted the company president, Samuel Lawson. At that time the town of Las Vegas with 1,000 people was being served by a Kellogg Magneto Switchboard. There were no toll connections and the only contact with the outside world was by telegraph. Las Vegas grew very little until 1929 when construction of the Boulder Dam was started. Kellogg then installed a 9-position Kellogg Manual Switchboard. Now a booming tourist attraction, Las Vegas will soon be using Kellogg Crossbar dial switching equipment which is presently being installed.

Fairly has been a resident of Los Angeles since 1916 and now lives at 1915 W. 69th Street. He has been a long-time member of Hollenbeck Lodge, A.F. and A.M. No. 319.

JAMES H. KELLOGG (right), president of Kellogg Switchboard & Supply Co., presents C. F. "PING" FAIRLY with an engraved gold wrist watch at a dinner in Chicago honoring his 45 years with the company.

Bishop Mfg. Announces New Electrical Tape

A NEW PRESSURE sensitive Vinyl Electrical Tape has been developed by the Bishop Manufacturing Corp., 14 Canfield Road, Cedar Grove, N. J., for general purpose applications where complete electrical and mechanical protection is required.

The new tape features an improved method of bonding the adhesive to the vinyl that prevents transfer, eliminating objectionable tackiness on the backing and giving greater adhesive strength. This makes it an ideal tape for use on hard-to-get at installations such as fixture openings, junction boxes and conduits.

Bishop Vinyl Electrical Tape is thin, tough and resilient. It can be pulled strongly without breaking to accomplish a very tightly wrapped splice, reducing the bulk of the finished job. It is recommended as an ideal tape for the electrician's tool box, for general insulation taping and as a jacketing tape for splicing of power transmission and distribution cable.

This new vinyl tape is available in two thicknesses of 7 and 10 mils. The dielectric strength of the 7 mil tape is better than 10,000 volts. Dielectric strength of the 10 mil tape is in excess of 13,000 volts. Insulation resistance of both types is over 200,000 megohms. These new Bishop vinyl tapes are available in 20 ft., 66 ft., and 36 yd. roll lengths and many widths to meet a variety of service requirements.

STROMBERG-CARLSON®

transmitter

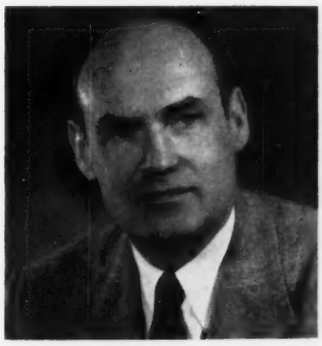
Published by the famous makers of XY® Equipment

VOL. 4, NO. 1 APRIL, 1955

Stromberg-Carlson's General Management Closely Linked to Independent Telephone Progress

The Independent telephone industry and Stromberg-Carlson have grown together over the last 61 years. Both have weathered times of stress as well as periods of rapid progress. 1954 has been a year of notable achievement for both the company and the industry it serves; each, in looking back, knows that it has attained its present position because it offered a service which was in demand and backed it up by a jealous regard for its own good reputation.

The Telephone Division of Stromberg-Carlson Company has its own officers, headed by John H. Voss, vice president. These respected leaders are all well known to telephone people; their stories have appeared in these pages and will appear again. In addition to the divisional officers, there are five men whose work is primarily that of determining the over-all policy of the company. Their associations with the Independent industry are already close. It is their personal hope to know many more as friends with the common bond of mutual interests.



Robert C. Tait

Robert C. Tait, president, must be acknowledged as one of the biggest men in the industry. Six-foot four in his stocking feet, "Bob" Tait impresses one immediately as a leader. The attributes of leadership become even more apparent as acquaintance broadens. Early experience in sales, advertising, manufacturing and finance give him the background for "looking in at the company from the outside." He is a good listener, primarily because he is interested in the other person and his point of view. During his term as president, the company has experienced its greatest expansion; each division has broadened both in productivity and scope.

Bob Tait is a director of the U.S.I.T.A. and on the Board of Directors of the Federal Reserve Banks.

If Bob has any reservations for the future, it is only lest size become a barrier to closer personal relations both within the company and with his customer friends. His request: Since it's easy to spot him in a crowd, please come up and say hello at the next telephone convention!

Gordon G. Hoit, executive vice president, has the seldom easy job of carrying on the program within the framework of over-all company policy. He now has not only the responsibility of keeping tabs on financial matters, but also that of maintaining a balance between divisions during this period of unprecedented expansion. While much of the direct contact with customers must be delegated to others, Gordon has a sincere appreciation of the pressing problems of all telephone managers as they, too, try to meet spiralling demands for more and better service.

Gordon's outside interests include several hundred school children whom he has served for years as a member of the school board, efficiently and shunning the spotlight; his talents have been drafted by the National Assoc. of Cost Accountants and the Controllers Institute of America. He is a vice president of the American Management Association, and a member of the Planning Council of this organization.

Gordon G. Hoit

Arthur F. Gibson, corporate secretary, became personally acquainted with a host of telephone men and women during his years as assistant general sales manager and later as

Arthur F. Gibson

divisional general manager of the company. Needless to say, "Art" still feels completely at home at the many State and National Telephone Conventions he attends and rarely misses an opportunity to greet his friends at those affairs. To his present position he brings a broad background of executive talent gained through familiarity with production, sales and general administration.

His oft-expressed philosophy is that people — whether customers, stockholders, employes, or what have you — are basic in the success of any company and that is evident in every move he makes. The "Washington" background gained through service on many Government Agency Advisory Committees is unmistakable in the manner Art handles the diplomatic problems confronting the corporate secretary. In spite of the many demands upon him in keeping corporate affairs running smoothly, including, of course, a close relationship with our stockholders, he somehow finds time to keep actively interested in the affairs of the American Society of Corporate Secretaries and numerous local organizations.

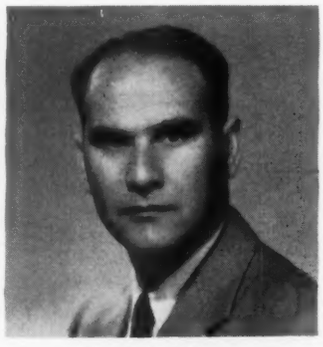
Charles W. Pritchard, treasurer, is

Charles W. Pritchard

also well known to most telephone people through the friendships established while he was credit manager. "Chuck's" approach to this task was unique: His constant study and endeavor was to help telephone companies to help themselves. Largely through his investigations, and with the facts he was able to assemble and present to lending institutions, the Stromberg-Carlson Credit Corporation came into being. This, the first plan of its kind tailored to the specific problems of the Independent telephone industry, has been of tremendous assistance to the small and medium-size borrower planning a modernization program.

Chuck has continued his interest in a constructive credit policy by introducing courses in industrial credit policy and management at the University of Rochester.

Daniel G. Schuman, controller, first came to Stromberg-Carlson as a representative of Price Waterhouse and Company, where he was a manager in the Management Services Division. After he had trained for industrial management at California



Daniel G. Schuman

Tech. and Harvard Business School, his talents were "requested" by the government during World War II. A commendation from the Secretary of the Navy is a little known but highly prized honor.

"Dan" was made an assistant treasurer of Stromberg-Carlson in June, 1952 and later that year was elected to his present post as controller. The details of establishing and maintaining proper control procedures in a complex organization fall largely to Dan. He belongs to many professional groups interested in management policies, including the National Association of Cost Accountants and the Controllers Institute of America.

• • • • • • • •

Don't Buy XY® Dial

(Unless you want more customers and profits)

Reading our salesmen's Call Reports does take time but certainly has its compensations. Except for the personal visits, such as your reporter has been privileged to make on his Postman's Holiday and other special occasions, this is our means of knowing customers' plans and how they like our equipment.

In a group of Call Reports which came across my desk the other day were three new ones — typical of dozens following the same pattern: XY dial = increased business.

Florence, Kentucky

"Since cutting over to XY dial, customer has not been able to catch up on the backlog of new applications for service. During January, 62 new telephones were installed; in addition 62 *new* applications were received over and above these installations."

Wright City, Missouri

"Manager was really busy installing new telephones. Since his cutover new orders are coming in very fast and he is having a time keeping up with this unusual demand."

Glendale, Oregon

"This company has certainly grown since cutting to XY dial. They now have over 385 (about 30% growth in last year) and now have held orders for about 50 more."

• • • • • • • •

STROMBERG-CARLSON transmitter

Company Officials Gather as Port Lavaca, Texas, Cuts to XY®

First calls over the new systems were made by Mayor A. B. Tippitt (left) of Port Lavaca and Mayor Earl Ermey of Point Comfort. General Telephone Company of the Southwest officials standing behind are Monroe E. Lange, Southern Division manager with headquarters at Robstown, Texas; W. G. Wright, president, of San Angelo; and James H. Davis, district manager, of Robstown.

Monroe E. Lange, Southern Division manager for General Telephone Company of the Southwest, explains the operation of the new XY dial equipment to his wife (left) and Mrs. W. G. Wright, wife of the company's president.

Special guests and General Telephone Company supervisors look on as the new 7-position Stromberg-Carlson toll switchboard operates as a supplement to the new XY Dial Telephone System.

Walter G. Wright, president of the General Telephone Company of the Southwest, made the principal talk at the "Dial Dinner" which preceded the conversion of the company's Port Lavaca, Texas, office on February 23. This XY dial exchange is initially equipped with 1500 lines and serves a fast-growing area of the southwest Gulf coast. The well-planned new building has provision for serving the many new customers who seem always to appear unheralded whenever an XY System is installed.

STROMBERG-CARLSON transmitter

"Hang-it-all," said Mr. Hart, "there must be a solution." And that's just what they did!

Mr. Philip Hart, vice president and manager of the Cazenovia Telephone Company, decided on a dial program some time ago. The general service requirements were not unusual, but the physical location of the dial equipment within the planned building area did present a real problem. In fact, one manufacturer completely withdrew from the negotiations when the facts were presented.

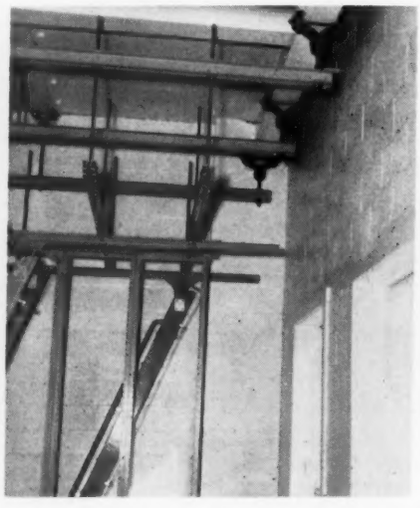
"Hang-it-all," said Mr. Hart, "there must be a solution." And that's just what they did!

The story and accompanying photographs of a complete XY® Dial System *hanging from the ceiling* should be interesting to many readers — not at all as a suggested type of installation, for the same combination of circumstances might not recur — but as an indication of how Stromberg-Carlson sales engineers and engineering department will work with a customer to find a practicable solution to the "impossible."

Clinton L. Stowe (left) Stromberg-Carlson engineer in charge of floor plans and cabling design, demonstrates to R. Philip Hart, manager, that bay frames do not touch the floor.

The story can be told best if we go back several years. In 1937, a disastrous fire completely demolished the wooden structure housing the telephone exchange. With the ingenuity characteristic of this company and its leaders, a temporary setup was made, placing a borrowed PBX in a garage, even before the debris was completely cleared from the burned out site.

No place to go except up! The second story addition for the dial equipment is shown clearly in this view from the rear alley. Adjoining buildings have party walls.



Universal "I" Beam. Clamps, familiarly called "ice-tongs," carry full weight of equipment frames and superstructure up to the "I" beam roof girders.

The financial loss from the fire, coupled with the uncertain times prevailing in 1937, dictated a cautious policy. A new building, with strong, fireproof walls, was built on the same location; however, plans for an eventual conversion to dial operation were pushed into the indefinite future.

By 1950, good management and growth within the community made it possible to get started on a dial program. Adjoining buildings ruled out expansion in any direction except by adding a second story over the existing manual switchboard room. The masonry walls had been constructed with this possibility in mind, but the roof over the 1-story

STROMBERG-CARLSON transmitter

Customer and Stromberg-Carlson engineers team up to solve a tough problem at Cazenovia, N.Y.

switchboard room was designed for snow-load only — not as a supporting floor for heavy steel frames and dial equipment.

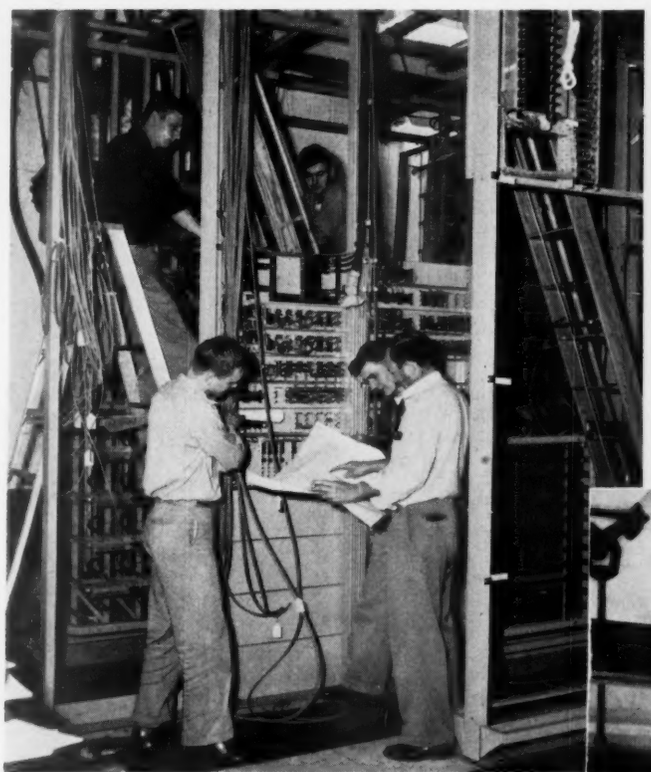
To reinforce this roof to convert it to a bearing floor would have been very expensive; it would also have created a serious dust problem and otherwise severely hampered the manual service which of course must continue "business as usual." The idea of building a reinforced floor *above* the existing roof was considered and discarded for several reasons.

The revolutionary method of supporting the frames from the ceiling offered these advantages:

1. The new second story had to be built and roofed anyway; the cost of using heavier "I" beams for its roof was small compared to the cost of duplicating supporting beams for *both floor and roof*.
2. The manual switchboard room could be completely undisturbed until such time as the dial conversion would permit this board to be dismantled and the area converted into offices.

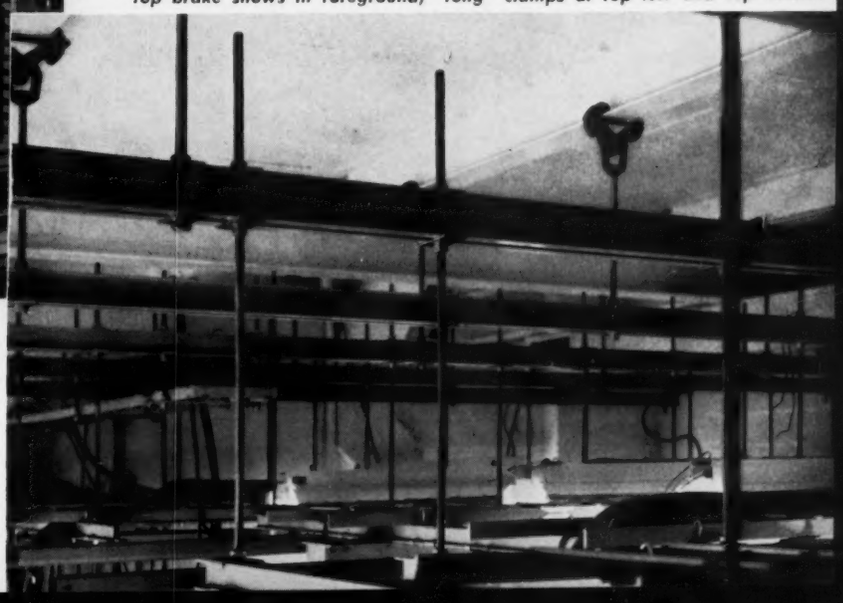
No one person worked out this idea in its final form. Proposals were made and double-checked with specialists to insure that adequate factors of safety were provided. Many extra weeks were devoted to making the special drawings for this unique method of installation. Cable runs and ladder tracks had to be planned to work with this specially designed superstructure.

Late this spring Cazenovia will cut its new dial office equipment into service. That is another story. But already in this central New York village — famed for its flavor of gracious living in days when life moved at a slower tempo — bold new ideas, born of necessity and accomplished by perseverance, have proved again that nothing is impossible.



New type of construction was a challenge to Stromberg-Carlson installers directed by Rex Atkinson (right), foreman. On ladders: Robert Hoffman and John Brewer. Standing: (left) B. J. Kuykendall, (center) Donald Dodd.

The manual switchboard, located below new dial room, must continue to give uninterrupted service until Dial Day comes to Cazenovia.



Another view looking across the suspended superstructure. Ladder track top brake shows in foreground, "tong" clamps at top left and top center.

STROMBERG-CARLSON transmitter

You can certainly learn a lot with a stop watch

by Don Kuritzky, Production Engineer

The many physical changes within the Stromberg-Carlson plant, all directed towards expanding and modernizing the Telephone Division, are immediately apparent to the visitor who has not had the sometimes perplexing opportunity to watch the intermediary steps. The long-range program will affect virtually every operation in the plant, as whole departments are being relocated, assembly lines redesigned and new equipment installed.

There are many reasons for these moves, all adding up to better and more complete service for the telephone industry:

1. The expansion of existing departments to cope with the increased demand for the end products.
2. The introduction of new products for today's needs.
3. The installation of new machines and techniques resulting from technological research and development.
4. The reduced handling made possible by establishing an improved flow of material through the production cycle.

Special emphasis was placed on the Telephone Instrument Assembly Department because, since the introduction of the "1400" and "1500" Series telephones, production goals have been continually raised to meet the increasing sales requirements. While the entire program for this department is not yet complete, enough progress has been made to know that planned production goals can be realized in the near future.

Straight-line Operation

The over-all planning calls for a straight-line type of operation within the department, thus reducing intra-departmental handling to a minimum. Raw materials and piece parts will be routed from stock to the sub-assembly lines. Sub-assemblies are to be conveyorized to feed directly into a central storage area which in turn will service the final assembly lines. Finished telephones are packed at the end of the line and sent directly to storage to await shipping.

The first installation completed within the department was the final

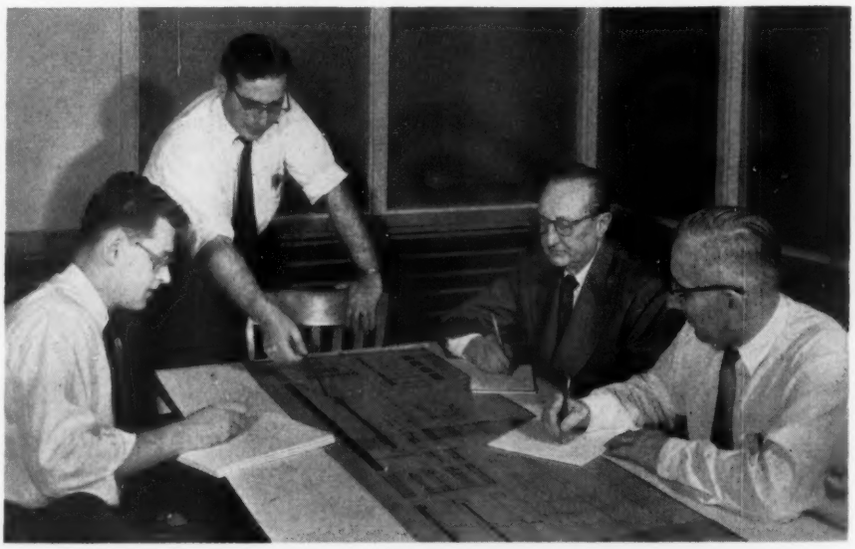
Editor's Note: Every telephone man has taken telephones apart and put them back together again. Possibly you take pride in how fast you can remove one ringer and put in another, or add a dial in place of a dial blank. Or perhaps it's just a chore that has to be done. But even if you've had lots of practice, the chances are that the girls on the Stromberg-Carlson assembly line can give you a good run for your money!

Of course you have an answer for this, and a good one. You will say, "But these are highly-trained, skilled operators. They have cleverly built fixtures for holding parts to be assembled. They have properly designed high-speed tools. Everything they require is fed to them exactly as they need it." This is true.

But it came about only after a great deal of study, experimentation, and — in some cases — restudy, as new ideas are suggested or new tools become available.

Just to show what we mean; by the time the reader with average speed has read to *here*, a handset is completely assembled. If you read a little slower, by the time you finish this Editor's Note, another complete 1543 telephone is ready for a user. Would you still like to enter the competition?

The results achieved by Production Engineering in the telephone instrument line will greatly improve deliveries of the "1500" Series telephones to our customers.



New plans required many conferences between engineering and production personnel. From the left: Al Degler and Don Kuritzky of Production Engineering; William Strohmeier, superintendent of telephone assembly; Owen Howk, foreman of the telephone instrument assembly departments. Scale decals are laid on master plan for job study.

STROMBERG-CARLSON transmitter

and a tape measure on the assembly line . . . . . We did!

assembly line. This line starts inside the stock room where an operator dispatches all major sub-assemblies in a unique parts fixture which travels the length of the conveyor and each operator removes her part as required. The fixture is returned to the stock room by a second conveyor.

All assembly operations are performed directly on the conveyor belt. At the lower end of the line, special inspection equipment was installed so that it is possible to thoroughly inspect all telephones directly on the moving line. Inspected telephones are removed and packaged as the final operation. A new semi-automatic case sealer is soon to be installed to aid this operation.

Typical of sub-assembly production lines is the handset line. Skillfully designed fixtures bring parts to workers, increase efficiency, assure uniformity.

Better Control Possible

The advantages of this new arrangement are many. Excess handling and wasted motions are eliminated. Complete control is maintained over sub-assembly inventories. Change-overs on the line from one model to another are achieved without stopping the line.

The efficiency of the new final assembly line has pointed up the necessity for moving forward as rapidly as possible on the sub-assembly phase of the program. The handset, hookswitch and ringers have already been conveyorized and new methods and equipment installed. Further refinements are in progress for the coil-capacitor, dial, receiver and transmitter units.

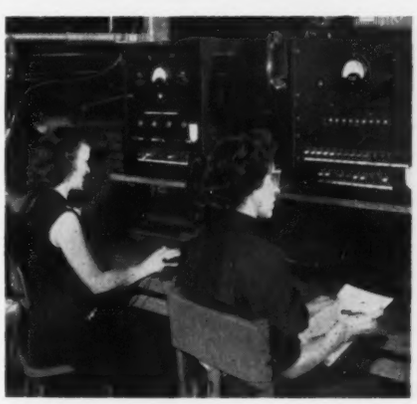
Additional improvements are contemplated within the department. An overhead conveyor system is being discussed, new methods and materials investigated and even a new system concerning the paper work within the department is now in the planning stage.

Teamwork Between Departments

In conclusion, it should be strongly emphasized that any program such as this would be impossible without the cooperation of all concerned. Sales, production control, cost accounting, engineering, production, inspection and maintenance are frequently called into conference with production engineering to help solve the many problems that are encountered. Production personnel have been most cooperative when undergoing temporary inconveniences while changes were in progress. It is indeed significant that moves now completed were accomplished without any loss in production or any decrease in the superior quality built into the Stromberg-Carlson telephones.

View of a portion of the telephone instrument final assembly line. Conveyor system, air drivers and individualized parts trays improve production.

At the head of the line is the stock room where fixtures are properly loaded for ease in assembly, started down conveyor.



Complete electrical testing of each instrument is performed at the end of the conveyorized line just before packing.

STROMBERG-CARLSON transmitter

Did You Hear Them?

Two Stromberg-Carlson Engineers were invited to address the Southern District of the American Institute of Electrical Engineers (A.I.E.E.) at their spring meeting April 13-15th at the Soreno Hotel, St. Petersburg, Fla.

Roy W. Jones, read a paper "Nationwide Dialing in the Area served by the Peninsular Telephone Co." He explained how the Peninsular Company has solved the engineering problems peculiar to the complete Tampa Bay area and central Florida.

Roy W. Jones

James D. Confeld

James D. Confeld, used the subject, "Problems and Techniques of Computing Charges on Customer-dialed toll calls" to explain how the recorded call data can be used to arrive at computed charges; what constitutes rate structures; and gave a comparison of the available methods.

George Elliott

George Elliott, earlier in Rochester, had presented a talk in the Prize Paper Competition of the Rochester Section, A.I.E.E. on the subject, "A Negative Impedance Type Amplifier for Conference Service." He also read before the Technical Discussion Group an assigned paper entitled, "Supervisory Controls and their Application to Telephone Communication."

Meet our Atlanta Representatives

Arthur L. Beam

Early training with the Gustav Hirsch Organization of Columbus, Ohio, gave Arthur L. Beam a thorough understanding of the basic principles of dial telephony. His work for this organization eventually took him to Latin America, where he spent four years installing dial telephone equipment in various South American countries.

Art's telephone experience goes even farther back, to his early job with the Ohio Associated Telephone Company. In spite of his comparative youth, Art was promoted to the position of Wire Chief in the Celina exchange of this company, serving the neighbors who had watched him grow up in this town.

In March of 1948 Art joined Stromberg-Carlson. His experience with dial installations proved most valuable in the XY dial program which was then under way. Conversion programs in many parts of the country — Hiram and Hinckley, Ohio; Soap Lake, Washington; Canby, Oregon, and Clements, Minnesota to mention a few — were completed under his direction.

For the last four years he has been sales representative for the states of Georgia, Florida, Alabama and Mississippi. The Beams live in Tallahassee. Their one child — Mitchell Alan — shows unusual interest for one of his tender years in things telephonic, especially when Dad calls home long distance.

Robert C. Lake

If Bob Lake should ever appraise your colored photos with a critical eye, it's because he once worked for Kodak in the early days of Kodacolor. Admits he was a red-hot fan then, but since has developed new hobbies: antique collecting, especially pattern glass; refinishing and repairing furniture; and rejuvenating old cars (the older the better).

Bob, Mary Lake and Barbara Sue (7) now have a new consuming interest when Dad can get home from the road. As Bob puts it, either the growing Stromberg-Carlson files or one of the family would have to move out, so they are building a new room to be used as an office.

Many readers knew Bob when he was in the Installation Department at Stromberg-Carlson. Military service interrupted, but in 1946 he returned as assistant to the Chief Installer. With this most valuable experience, Bob in 1951 became a sales representative in the Atlanta office, stepping into some pretty big shoes in his assignment to cover the states of Virginia, the Carolinas and eastern Tennessee.

During vacations Bob likes to return to his parents' home (Rochester), and always stops off for some fishing, swimming and lots of rest at Mary's home in Lexington, Kentucky.

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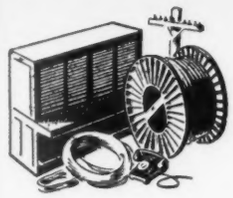

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The Back Of The Book

By JOHN G. REYNOLDS

"Jackrabbit Trouble"

THERE ARE bound to be some claims soon that Osmond, Neb., jackrabbits are the jumpingest anywhere. *Dale Powers, Osmond REA lineman*, reports that a crew went out to trace down a short circuit that knocked out power to six farms, and found the source of the trouble atop a 35-foot pole. It was a full-grown jackrabbit whose body had shorted the wires.

"Menu Service By Phone"

HOUSEWIVES troubled by menu problems will soon be able to get ideas for the family dinner by calling the Hull, England, telephone exchange. The Hull Telephone Committee — it is Britain's only municipally owned telephone system — has approved a *"Dial for a Menu"* service for the town's 46,000 telephone subscribers. The idea was suggested by a bachelor member of the local council. Each day a different menu, complete with recipes, will be available on a recording between 8:30 in the morning and noon.

Future Bosses Study Liberal Arts

TODAY'S EXECUTIVES must be broad-gauged, well-read men interested in everything from the Bible to bookkeeping. Yet it is ironical that this age of specialization seems to be developing some bosses who often are disinterested in ideas and events not directly related to their jobs.

But President Wilfred D. Gillen of the Pennsylvania Bell Telephone Co. should be applauded by every American for taking a wiser view. He realized that the young executive, despite his technical know-how, needed training that would prepare him to make the broad decisions required by modern business. So he has sent 36 of his bosses-of-the-future to the University of Pennsylvania for a full-time, 10-month course in the liberal arts.

The plan has been termed a "success" by both the company and the university. Course "graduates" agree they are prepared to make "better decisions."

Our great universities certainly provide a climate in which many firms, which want to, could use the plan.

Intelligent leadership is a cornerstone of business as well as government. Everyone — the bosses, the nation and the underlings — would benefit by schooling executives in logic, esthetics, philosophy and ethics.

Hot Calls

IF YOU EVER think that weather isn't the most important news item of the day to an awful lot of people, harken to these figures compiled by a Chicago weather bureau official. He figured out that persons in a dozen major cities (including New York, of course) spent more money last year in phoning for automatic weather reports than it costs the Federal government to operate the entire weather servic. Last year's Federal appropriation for the bureau, incidentally, was $24 million.

Good Excuse

ACCORDING to *Michigan Bell* magazine, one of the information operators in Flint got a call from a woman who wanted the number of a local drugstore. Apologizing for the unnecessary call, the woman said: "I'm sorry to bother you but the reason I'm asking is that my house burned down and my directory was also burned up." It's easy to understand why she might have needed some aspirin in a hurry.

"Strictly For The Birds"

WE HAVE been told about a service rep who received a call from a lady who insisted on having the same telephone number when she moved to a new location.

"If I don't, she explained, "my parakeet will have to learn the number all over again."

We can understand the lady's problem. Certainly the telephone company can't expect a parakeet to look in the directory every time it wants to dial home.

Case For A Private Ear

OUT WEST a housewife returned home recently to find her home ransacked. Drawers were open, silverware was scattered about and the place was a general mess. But a close check showed that the only item missing was the telephone.

"I always knew I couldn't get along without my phone, but I never realized it was that valuable," she told police.

She might have added that it's always been a *"steal"* for the money it costs.

Imperturbable

WE'RE INDEBTED to *Pageant* for an item depicting the composure of this generation's youngsters. Seems a little girl was seated on the front porch when a salesman approached, found out the child's mother was home and rang the bell. After several attempts and no response, he turned to the youngster and said: "I thought you told me your mother was home?"

"Yes, I'm sure she is," the child nodded.

"Then why doesn't she answer my ring?"

"She will when you ring our bell," said the girl. "We live across the street."

A flip of the switch automatically transfers calls from office to home

Subscriber Transfer Service offers

new income opportunity

Think of any subscriber who is "on call" at all hours — and you've found a customer for Subscriber Transfer Service! Doctors, lawyers, sheriffs, morticians, realtors — these and many others must have their business calls transferred to their homes or other points when they leave their offices. They need this dependable service — and will gladly pay extra for it. You get new income, plus a great deal of grateful appreciation!

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